Scientific American.

THE ADVOCATE OF INDUSTRY AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

VOL. 2. NEW YORK, APRIL 10, 1847. NO. 29.

THE NEW YORK
SCIENTIFIC AMERICAN:
PUBLISHED WEEKLY.
At 128 Fulton Street, New York (Sun Building,) and 13 Court Street, Boston, Mass.
By Munn & Company.
The Principal Office being at New York.
RUFUS PORTER, EDITOR.

TERMS.—$2 a year—$1 in advance, and the remainder in 6 months.
☞ *See Advertisement on last page.*

POETRY.

TO CHILDREN DANCING.

Glide on! glide on! ye blithsome throng,
With youthful spirits flowing,
Join the revel, dance, and song,
In health and childhood glowing;
A few short years and rebel thought,
With some new fancy dreaming,
May chase his rosy bloom that sought
Its home where smiles are beaming.

Glide on! ye joyous hearted train!
Your footsteps lightly chasing,
May never bound so free again,
In memory's retracing;
The hopes that lead you smiling on,
In these gay glittering hours,
May be recalled when they are gone,
And thorns supplant the flowers.

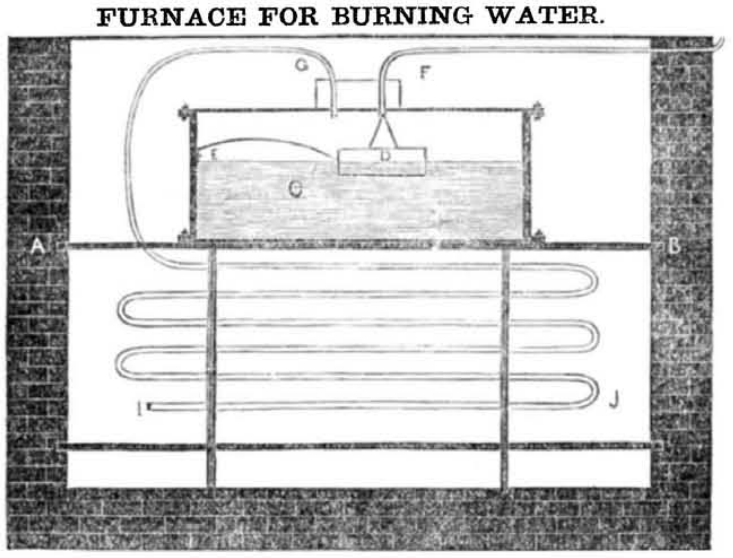
Glide on! while laughing lips and eyes
Confess the heartfelt pleasure
Which in a transient moment, flies
To music's sweetest measure;
Be happy while you can and may,
Too soon will come the morrow,
When time will bid old care to stay
And count his hours of sorrow.

Glide on! thus happy from your birth,
May cheerfulness surround you;
Unmingled by your childish mirth;
Though care may be around you,
The heart's true light while it displays,
Unchecked by friend or lover,
Oh, may your merry dancing days,
Fair children ne'er be over!

THE MINERS.

Burrow, burrow, like the mole,
Ye who shape the columned caves!
Ye are black with clinging coal,
Black as fiery Afric's slaves!
Sink the shadowy shaft afar
Into the breast of our native star!
Rend her iron ribs apart,
Where her hidden treasures are,
Nestled near her burning heart!
Dig, nor think how forests grow
Above your heads—how waters flow
Responsive to the song of birds—
How blossoms paint in silent words,
What hearts may feel but cannot know!
Dig ye, where no day is seen;
Vassals in the train of Night,
Build the chambers for your Queen,
Where with starless locks she lies,
Robbed of all her bright disguise!
There no precious dews alight,
None but what the cavern weeps,
Down its scarred and dusky face!
There's no bird in all the place,
Not a simple flower ye mark,
Not a shrub or vine that creeps
Through the long, long Lapland dark!
Burrow, burrow like the mole,
Dark of face but bright of soul!
Labor is not mean or low!
Ye achieve with every blow,
Something higher than ye know!
Though your sight may not extend
Through your labors to the end,
Every honest stroke ye give,
Every peril that ye brave,
In the dark and dangerous cave,
In some future good shall live!

FURNACE FOR BURNING WATER.



INTRODUCTION.—Neither the public, nor our enterprising readers, are probably prepared to believe that mere water is about to supersede wood and coal, as fuel for warming houses, supplying steam for engines, and light for the streets of cities: But we opine that the principal argument that will be produced against its practicability, will consist of mere expressions of scepticism, without theory.—And we should not be surprised if a considerable excitement should occur among the proprietors and dealers in fuel, especially in coal. That this plan for burning water instead of other fuel, should come into immediate and extensive use, is not to be expected. But the principle having been established, we may rationally anticipate, in view of the present rapid progress of improvement and discoveries, that water will soon be the principal fuel used.

EXPLANATION —The view is a sectional one, showing the interior of a furnace, boiler, &c. A. B. represent the side walls of the furnace or fire place, and mark the ends of one or more crossbars, which support a cylindrical boiler C. The boiler is represented to be partly filled with water, (which for this purpose must be very pure) and on its surface is supported the float D, kept in its place by a delicate plate spring which is attached to the end of the boiler at E. The float has a conical projection upward, the point of which enters the bottom of the water pipe F; so that when the water rises to its proper height within the boiler, the pipe becomes closed, and a further induction is prevented. This water pipe is supposed to extend to an elevated reservoir, from which the water flows to the boiler whenever the descent of the float permits. The pipe G is of platina, and is coiled, or passed several times through the fire-place, and a section thereof, from I to J is perforated with many minute holes upward, but is closed at the end. The furnace being filled and the pipe surrounded with coal or other fuel, and ignited, the pipe soon becomes heated, and the water in the boiler commences boiling, when the steam produced, in passing through the heated pipe, becomes decomposed and reduced to its constituent gases, which escaping through the minute apertures, produces the most intense flame, sufficient to keep up the heat of the coiled pipes and the boiler perpetually, after the other fuel is exhausted. A part of this newly produced gas, may be conducted by branch pipes to any apartment where light is wanted, and will readily produce a beautiful intense light; and this without any expense whatever, except that of water to supply the boiler. We shall proceed with experiments, and take due measures for securing a patent for the invention.

Female Curiosity.

A naval officer, who lately came to reside in Edinburgh, having engaged a large mansion on a short lease, despatched his butler to receive his furniture, and have the house put in order. The butler engaged a young woman, residing in the neighborhood, to clean out the rooms, and arrange a part of the furniture; and he assisted her himself to carry up a large chest of rather singular appearance. This gigantic box his master had purchased as a curiosity; but, unlike that described in the song of the "Mistletoe Bough," it did not shut, but opened with a spring attached to the lock, which being touched, the lid flew open, and a tall brawny Highlandman, in full costume, stood erect, and struck out his right arm, in which was a wooden sword. The gentleman purchased it as a curious piece of mechanism, and was wont to amuse his children with it. "That's a heavy chest," said the woman, as they placed it on the floor. "Yes," answered the butler who was a wag of the first water, "there's something heavy in it, certainly; but there's something mysterious about it also, for although the key hangs at the end of it, not one of us is allowed to open it. "Did you ever see the inside of it?" replied she, walking round it. "Never," said he. "It's as much as our place is worth even to speak about it." So saying, the knight of the corkscrew looked first at the woman, then at the chest on the floor, and then retired slowly down stairs, whistling, to work, on the ground flat. The girl proceeded to put things to rights in the room; but every time she passed the chest she thought it the more odd. "Frailty, thy name is woman!" She rapped on the lid with her knuckles—it had a curious, hollow sound—very! And none of the servants dared to open it! What on earth could it contain? Well, it was none of her business; so she went diligently to work for five minutes, at the end of which time she saw herself standing with her arms akimbo, gazing on the chest. "It can do no harm to look into it," thought she; so she quietly took the key from the nail and applied it to the lock. Of course she heard foot steps on the stairs—as every one will do when afraid of detection in the commission of some act they wish to keep secret. Again she regained confidence, and returned to the chest; she stooped, and turned the key. Up flew the lid; and the wooden Highlandman, kilt and philabeg, sprung on his legs with more than human agility, and fetched the petrified girl a sharp whack across the shoulders with the flat of his "Andrea Ferrara." A prolonged shriek, ending in a moan of despair, indicated that the poor woman had sought relief in a swoon. In the course of a few minutes the woman rose on her elbow, looking wildly round the room, till her eyes caught the Highlandman bending over her. Seeing nothing but destruction awaiting her, two springs took her to the door; down stairs she went, nor did she slacken her pace till she found herself standing in the house of a lady, in the neighborhood. The poor woman did not recover from her fright for several days.

LIST OF PATENTS

Issued from the United States Patent Office, for the week ending 3d of April, 1847,

To Lewis Kirk, of Reading, Penn., for improvement in Steam Trip Hammers. Patented April 3, 1847.

To Charles Kirk, of Bristol, Conn., for improvement in Clocks. Patented April 3, 1847.

To William D. Taber, Buffalo, N. Y., for improvement in arranging valves, &c., for Pumps. Patented April 3, 1847.

To Dudley L. Farnham, New York, for improvement in valves & valve boxes for Pumps Patented April 3, 1847.

To John Shugert, of Elizabeth, and George M. Porter of Philadelphia, Penn., for improvment in Washing Machines. Patented April 3, 1847. Ante-dated 2d November, 1847.

To Jean Constant Pelyt, of Paris, France, for improvement in machinery for making Type. Patented April 3, 1847. Ante-dated May 15, 1847.

To Edmund L. Dozer, of Camden County, N. Carolina, for improvement in Threshing Machines. Patented April 3, 1847.

To John D. Beers, of Philadelphia, Penn., for improvement in valves of Steam Engines. Patented April 3, 1847.

DESIGNS.

To John C. Moore, of New York, for Design for spoon handles, &c. Patented April 3, 1847.

Enjoyment in Life.

Two wealthy citizens of Boston, were lately conversing in regard to the period when they had best enjoyed themselves. "I will tell you," says one, "when I most enjoyed life; soon after I was twenty-one, I worked for Mr ——, laying stone wall, *at twenty-five cents per day.*" "Well," replied the other, "that does not differ much from my experience; when I was twenty, I hired out at *seven dollars per month;* I have never enjoyed myself better since." The experience of these two individuals teaches, 1st, that one's happiness does not depend on the amount of his gains or the station he occupies; 2d, that very small beginnings, with industry and prudence, may secure wealth.

A Curious Calculation.

What is a billion? The reply is very simple—a million times a million. This is quickly written and quicker still pronounced; but no man is able to count it. You may count 160 or 170 in a minute; but let us even suppose that you may go as far as 200; then an hour will produce 12,000; a day, 288,000; and a year, of 365 days, 105,120,000. Let us suppose now, that Adam at the first beginning of his existence had begun to count, had continued to do so, and was counting still: he would not even now, and according to the usually supposed age of our globe, have counted near enough. For to count a billion, he would require 9,512 years, 34 days, 5 hours and 20 minutes.

The Debating Society of Spring Garden, has recently, after a very animated discussion on the question, "Whether any *Gal* has a right to say *no* afore she is axed," decided *nem. con.* that "she *haint.*"

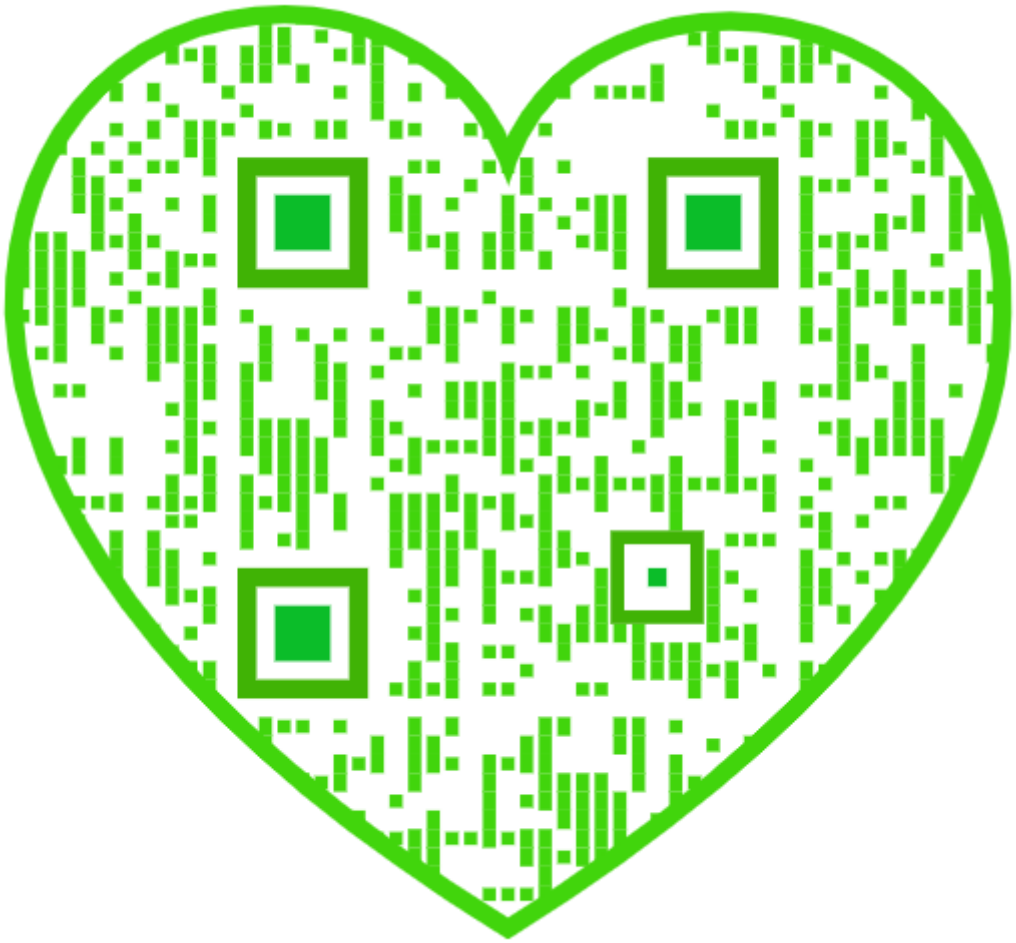
A funny milkman in Cincinnati, significantly remarks in an advertisement that there are no creeks or streams between his dairy and the market.

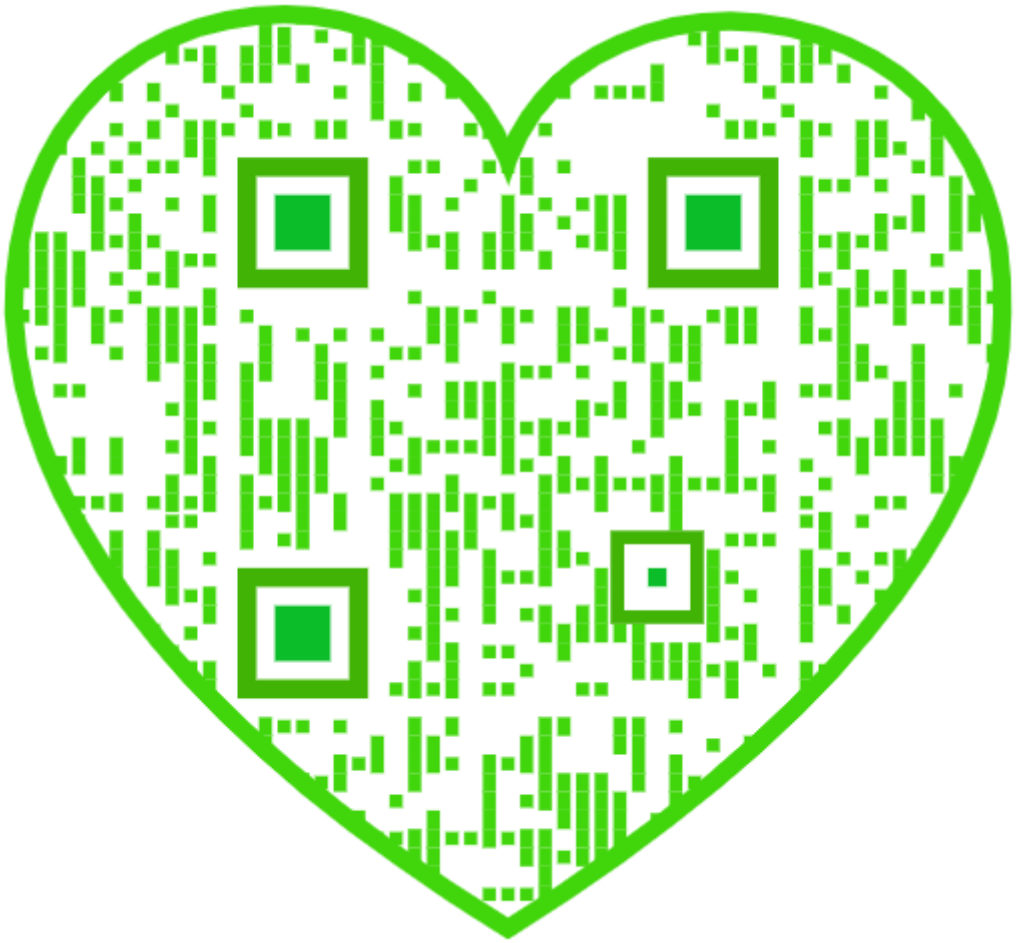
A watchmaker being asked the age of his youngest child, said he was just a "quarter of three."

If you would get along in the world, you must hold up your head, even if you know that there is not much in it.

Jesse B. Browne, Speaker of the Iowa House of Representatives, is six feet seven inches in height.

© 1847 SCIENTIFIC AMERICIAN, INC





Most Singular and Romantic Affair.

The Cincinnati Commercial has received from Bachelor's Bend an account of a most strange and romantic affair, the truth of which is attested by six citizens of that place, and which, though backed by such attestation, challenges credulity itself. We however give the narrative as it comes to us. A young man from Covington, Ky., named William Johnson, had arrived at Bachelor's Bend, and was walking in the woods when he met a man called McCaron, with whom he had formerly quarrelled about a young lady. McCaron followed him to the river, and in the presence of our correspondent and others, challenged him to a duel. Johnson accepted, and remarked that he would be on the ground at any moment desired. McCaron had not anticipated this, but fearing Johnson, and other words following, he drew a revolver, and after snapping one cap, fired the second ball at his rival.—Johnson fell upon his knee, and drawing a pistol, called on the crowd and Heaven to witness that he shot McCaron in self-defence, and fired. McCaron fell just as he was raising his arm to fire again at Johnson, and died in three minutes. Johnson was immediately arrested and placed under guard. The news spread rapidly, and during the night a mob collected This mob continued to swell, and at 9 o'clock next morning, broke down the door of the Sheriff's house, and led Johnson away to a temporary gallows.

The victim asked for a few minutes reprieve to make a confession of his life. This was granted, and he spoke ten minutes with a choking voice. He defended himself for killing McCaron, and said there was not a man present but who would have done the same thing under like circumstances. He urged that he had always been the friend of the poor, and had preserved a good character. This appeared to have little effect upon the mob. At the conclusion of his remarks, he looked around upon the crowd, and asked if there was a friend of his among them—if so, step forward. There was a pause, then a confusion in the assembly, and a young lady made her way thro' the crowd, and fell at the prisoner's feet. She raised herself, and turned to the mob, begged of them to spare him. She said she had been a witness to the quarrel and its fatal end, and that Johnson was not to blame. "Gentlemen," she concluded, "have mercy upon him—spare him for my sake, or hang me in his place."—She fainted, and was borne away. A new feeling pervaded the breasts of the mob, and cries of "clear him, clear him," filled the air. The prisoner was taken from the gallows and set at liberty. The young lady saved him—had generously offered to take his place on the scaffold—had plead for his life as she would not have done for her own. Thrilling and romantic. She was the daughter of a rich cotton planter in Mississippi, and a young lady of much influence. It was requested as the only recompense from Johnson, by some ladies, that he wear crape on his arm for McCaron.

Astronomical Observatory.

The Literature Committee of the New York Senate have reported a bill recommending that "the unappropriated surplus" of the Mariner's Fund; (resulting from a tax on ship owners,) which it is estimated will yield $3000 a year, be applied towards the erection of an Astronomical Observatory on Staten Island.

Effects of the Storm.

Thirty vessels were driven ashore between Caldwell's and Poughkeepsie, on the North River. The Steamboat Rochester, on her passage up, had one of her pipes blown off, and her wheelhouse partly torn away. The storm extended over the whole State, and on the central line of railways snow covered the track in many sections, to the depth of two feet.

Lady-Free Masons.

A French lodge has been installed in England; and henceforth, ladies are to be admitted as members of the lodges.

American Bible Society.

We most cheerfully comply with a request of the Corresponding Secretary of the A. B. S. to copy the following letter from the Vermont Chronicle; and we are happy to record the readiness of the Society to correct the errors to which we in a former number alluded.

For the Vermont Chronicle.

BIBLE HOUSE, NEW YORK, Feb. 8, 1847.

Messrs. Editors.—Some one has had the kindness to send me your paper of the 27th ult, containing an article signed "X," which points out some errors in our Octavo Bible of 1839. I am happy to hear from "X," even in this way, but should have been better pleased with a letter direct, signed by his own *Christian* name. He would then have received a satisfactory account of the errors referred to, and in a way which would not have awakened suspicion as to our books, which are ordinarily remarkable for their correctness.

As the matter stands, I will thank you to publish the following statement for the satisfaction of "X" and of those who may have read his article.

The Octavo Bible referred to was published when Prof. Bush was the societies' Editor.—He was known to be a *learned* man, and an author accustomed to proof reading, and no fear was entertained that this new book would come forth incorrect. But as ought perhaps to have been anticipated, (for learned authors seldom are good proof readers,) this *soon* turned out to be defective enough, and we ceased to issue the book until the plates were thoroughly corrected by another, after the Professor retired. We took pains at the time, to call back the defective books as far as we could, and to send corrected copies in place. This we shall now be very happy to do in the case of "X" and of any others who may have an uncorrected copy. I will here add more generally, that when there is a defect of any kind found in one of our books, such as an omitted or transposed leaf, our Managers will be glad to furnish a perfect copy in its place.

Yours very respectfully,

J. C. BRIGHAM,

Corresponding Secretary, A. B. S.

Ladies' Lotteries.

The lady members of an Episcopal church in Ithia, have been recently much alarmed by the presentation before the Grand Jury, of bills against them for selling lottery tickets at a recent Ladies Fair in that place. The good religious people act, we presume, upon the principle that the end justifies the means. What is vice in others is virtue in them, the laws to the contrary, notwithstanding.

Prescott Mills, Lowell.

The new Prescott is a most beautiful mill. The rooms are all heated with hot water pipes, and hot and cold water are constantly supplied to the hands by means of pipes when required for washing or cleaning. The rooms are large and airy; the looms are propelled by steam; and this is the only mill in the city where steam power is used for weaving.

More Curiosities.

The sieve through which the man "strained every nerve;" feathers from Pompey's pillar; nine cents the moon had left out of her last quarter; blanket from off the bed of the ocean—the jar that contained Venice preserved; the key that wound up the city watch.

A Large Bale of Cotton.

A few days ago, (says the Tuscaloosa Monitor,) there was delivered at the cotton warehouse, near the wharf in this city, a bale of cotton packed by Mr. George Hewit of this county, which weighed 1317 pounds.

A Yankee Lady.

On the opening of the Northern Railroad to Franklin, the liberal citizens of that town entertained, gratuitously, some twelve or fifteen hundred guests. One energetic lady, it is said, actually fried *fifteen bushels* of Yankee dough nuts.

Gun Powder Market.

It was stated by Mr Mould, on the occasion of the opening of the Lancaster and Carlisle railroad, that no less than 4800 barrels, or 200 tons of gunpowder has been used in excavations on that road.

Dr. Judson & his associates arrived in Burmah after a passage of 139 days.

FROM THE ARMIES IN MEXICO.

Since our last number went to press, we have been favored with the greatest variety of interesting intelligence from our busy armies that has even been promulgated in a single week. Several official despatches from Gen. Taylor has been received at Washington, confirmatory of the report of a glorious victory achieved over the main body of Santa Anna's army, of which we shall give a very brief outline. Beyond Saltillo are two important passes, one at Buena Vista, six miles from Saltillo, and the other near Augua Nevea, twelve miles beyond. Gen. Taylor had established his head quarters at Augua Nevea, where he remained till large squadrons of Mexican cavalry had passed to his rear by circuitous routes, and the main body pressed hard upon him, when he prudently retreated and took up his position at Buena Vista, with about 4,500 men. Santa Anna sent a flag, with a very humane invitation to Gen. Taylor to surrender, assurring him that he was surrounded by 20,000 troops (which was not far from the truth) to which he respectfully begged leave to decline. The Mexicans already exulting in anticipated victory, charged with great energy, but their dense columns were mowed down by the unerring fire of the American batteries of artillery; and after 30 hours, the Mexicans being impetuously charged in turn, were completely routed, and many of them scattered. The Americans pursued them, and resumed their position at Augua Nevea. The loss on the American side, is about 300 killed and 450 wounded; that of the Mexicans supposed to be 3000. Gen. Taylors' last dispatch was dated March 1st, four days after the battle, and was sent by Lieut. Crittenden, with an escort of 200 men, and having in charge about 120 wagons. Between Monterey and Camargo, the party were attacked by 1500 Mexican cavalry under the immediate command of Gen. Urrea. They were met by a sharp fire of cannon and musketry, and, after a short engagement, were routed with the loss of many of their men.

Full reports have been received of the landing near Vera Cruz, and under the fire of the castle, of 12,000 troops under Gen. Scott. After attacking and carrying several redoubts,—which, however, did not impede the advance of the main body, they took positions on the left and rear of the city, and commenced entrenchments, in the progress of which they cut off the water pipes by which the city was supplied with wholesome water. A constant cannonading from the castle and the city, was kept up, but without effect. The Governor of the city is reported to have hung several persons, for favoring a capitulation. He may change his mind when he hears of Santa Anna's mistortunes.

In connection with this intelligence, we have reports of the success of the American arms at Santa Fe & California, at which country Gen. Kearney had arrived with 200 men from New Mexico. Uniting other forces with his own, he immediately attacked the town of Los Angolos and retook it after a stout resistance Upper California is now in our undisputed possession.

The latest accounts represent that, as far as could be heard from, Santa Anna was retreating towards San Luis, many of his troops having deserted him, and dispersed over the country. Urrea with his 6000 cavalry, are also reported to have retreated, and left the whole eastern section of Mexico—Vera Cruz excepted,—in possession of the Americans

In view of these successes, it should not be overlooked that the Americans have been signally favored by remarkable dispensations of Providence, beyond human control. The army of Santa Anna had been two or three days without provisions at the time of the battle, and moreover, a rainstorm prevailed at the time, which was peculiarly unfavorable to the Mexican army. We feel restrained from moralizing farther on this subject; but that Mexico, as well as some other despotic countries, is suffering a severe visitation of divine rebuke, we see no reason to doubt.

The latest report (up to March 16,) is that Gen. Taylor with 1500 horsemen and four pieces of flying artillery, was in hot pursuit of the retreating Gen. Urrea with his 6000 Mexicans. It was expected he would overtake him in two days.

Latest accounts from Santa Fe, via St. Louis, announce that a body of 2000 Mexican insurrectionists had attempted an attack on Santa Fe, but were met by Capt. Morris's command and completely routed, and fled to the mountains.

A Mexican in Matamoras has offered to deliver Canales in that city alive and bound hand and foot for the sum of two thousand dollars.

FOREIGN NEWS.

The Packet Ship Columbia arrived on Tuesday morning, twenty-nine days from Liverpool having encountered severe weather on the voyage. We select but a few brief items from the news by this arrival.

The scarcity of breadstuffs in France is such that much of the corn and flour, recently shipped to England from this country, has been bought up by French merchants, for France.

Letters from Belgium are of a most distressing character. The rise in the price of wheat in that country was still greater than in France.

Considerable excitement exists between the Turkish and Grecian governments and threats that war would be declared by France against Turkey. They are arming on all sides

The Carlists in Spain are said to be increasing in strength and numbers, and there is an alarming prospect of serious civil disturbances.

The English papers state that there have been several falls of black snow and black rain, of late, in the Isle of Man.

Eleven horses have been recently killed on the new railway between Brokenhurst and Ormanby, England, in consequence of being retarded by deep mires till the trains which they were hauling, ran upon them.

A subscription for the relief of Ireland has been started at Rome, to which the Pope sent 1000 Roman crowns.

Waiting for Guns.

By a paragraph in the New Orleans Bee, it would appear that Gen. Scott, after placing his troops within the range of the Vera Cruz guns, has got to wait for some *heavy guns* from the War Department before he can commence the bombardment. We should be glad to know whether those guns are yet cast, and in what stage of progress are the finishing or transportation thereof.

P. S. Since writing the above we have learned that one of these guns has reached Havana, on its way to Vera Cruz.

Another Striped Pig.

Twenty-nine gallons of liquor are now bought, and twenty eight sold immediately back, to get around the "28 gallon law." Boston Star says so.

The selectmen of Westfield, at the late town meeting held in that place, were instructed by the town, to strike from the jury list the names of all *odd fellows, rum sellers and rum drinkers.*

A provoking blunder in our last number escaped our sight till too late. In speaking of "the Pictorial Sun as a *periodical,*" the types had it "*postscript*:"—a wonder they had not made it patriarch or punch bowl.

Mr Kingdom of Trinity College, Cambridge, and several other popular clergymen of England, have recently made profession and been received into the Roman Catholic Church.

The Boston Bee says that a mechanic, when he does not behave himself, instead of being God's nobleman, is no better than a lawyer, a physician, or a member of the upper five dozen

Gerrit Smith has contributed $2,000—the largest individual donation yet—to the relief of the sufferers in Ireland.

The Emperor of Russia has ordered that no person shall establish any telegraph in his dominions without his permission.

Elihu Burritt proposes that the factory girls of Middlesex and Essex counties, shall send out 10,000 calico dresses to clothe the females of Ireland.

© 1847 SCIENTIFIC AMERICIAN, INC

ADVERTISEMENT OF A LOST DAY.

BY MRS. L. H. SIGOURNEY.

Lost ! lost ! lost !
A gem of countless price,
Cut from the living rock,
And graved in Paradise.
Set round with three times eight
Large diamonds, clear and bright,
And each with sixty smaller ones,
All changeful as the light.

Lost—where the thoughtless throng
In fashion's mazes wind,
Where trilleth folly's song,
Leaving a sting behind ;
Yet to my hand 'twas given
A golden harp to buy,
Such as the white-robed choir attune
To deathless minstrelsy.

Lost ! lost ! lost !
I feel all search is vain ;
That gem of countless cost
Can ne'er be mine again ;
I offer no reward,
For till these heart-strings sever,
I know that heaven-intrusted gift
Is reft away forever.

But when the sea and land.
Like burning scroll have fled,
I'll see it in His hand
Who judgeth quick and dead ;
And when of scathe and loss
That man can ne'er repair,
The dread inquiry meets my soul,
What shall I answer there ?

PROVIDENCE, March 29, 1847.

Mr. Editor.

In my communication on "Evaporating in Vacuo," published in the Scientific American of the 27th ult., I made the remark that there appeared to be a prevailing opinion in regard to the subject, which was erroneous and ought to be corrected. Your remarks at the time, and the remarks of your correspondent "T. H" have fully confirmed me in the assertion I then made. I had commenced preparing a communication on the subject illustrative of the position I then assumed, and which I pledge myself to maintain ; but, belonging as I do, to that unfortunate class who have to work for subsistence, and viewing the subject as one of considerable importance, I was obliged to defer it for the present, in order that I might give it that consideration to which it is so justly entitled. Without going into a discussion of the main question I ask your indulgence, while I correct some of the misconstructions of your correspondent, and refute some of his erroneous statements. "T. H." says that "the pressure of the atmosphere is the greatest obstacle to overcome in producing evaporation ; and the only obstacle which prevents many liquids from existing as vapors, at ordinary temperatures." This I conceive to be an entire new theory. I was aware that the evaporation of liquids below the temperature at which the tension of their vapors would be equal to the tension of the atmosphere, would be retarded ; but that it is prevented, I cannot at present admit ; I want proof. Dr. Dalton (*a*) says that "the quantity of vapor from a volatile body, which can rise into a confined space, is exactly the same, whether that space be a vacuum or already filled with any air or gas, in any state of rarefaction or condensation." The case "T. H" cites of evaporating small quantities of ether or alcohol under the receiver of an air pump, is not strictly a parallel case, and will not apply to large quantities, for reasons which will be shown hereafter. In regard to the condensation of the vapor of ether by admitting air into the receiver, I can only say if it is so (which I am inclined to doubt) give us the theory. "T. H." says again "water will boil in a vacuum at the temperature of 32° F." (*b*) and then goes on to say that there is a loss of fuel sustained in evaporating the open air, equal to that which would overcome a pressure of 14 1-2 pounds on every square inch of the surface of the liquid, and it has been ascertained that to overcome this pressure it requires 140 F, which is the loss sustained. In regard to the first statement I would say that I have known water to freeze at 32° F., but 65° is the lowest point at which it can be made to boil. (*c*) I would merely state in reply to this last statement, that equal quantities of heat, produce equal weights of vapor, without regard to temperature ; this point I intend to prove in my next "T. H." says again, "the writer says that steam or air is more rare at a temperature of 100 than at 212° and also that is lighter and less elastic at the former than at the latter." How he could put such a construction upon what I said is beyond my comprehension, as the word air is not in my communication at all. What I said there, I repeat now, and that is, that steam at 100 is much more rare and expanded than at 212°(*d*) and that its rarity increases with a decrease of temperature ; but if it be detached from the liquid that produced it, it obeys the same natural laws as air, and increases in rarity with an increase of temperature. But "T. H." in endeavoring to prove me in error in what I did not say, has himself made a most egregious mistake in supposing that a pint of air can be increased by rarefaction to four times its volume in a bladder. According to the experiments of Dr. Dalton, Gay Lussac, and Mr. James Crichton of Glasgow, air at a temperature above the freezing point, expands 1-480 of its volume for every degree of heat or that it requires 480 degrees of heat to double its volume : now one volume at 100 is two volumes at 580, and four volumes at 880+180 =1060, which is 80° above read heat. I will reconsider my theory, Mr. Editor, not because I have any misgivings as to its correctness, but in order to substantiate more fully and beyond a doubt the position I have assumed.

Respectfully yours,

A (true) SUBSCRIBER.

REMARKS.—(*a*) Dr. Dalton's theory is erroneous, and your reliance thereon furnishes one of the many instances in which the knowledge of true scientific principles is greatly retarded by the publication by A. M.'s of erroneous conclusions drawn from results of imperfect experiments ; or more probably from the published opinions of those of former ages.

(*b*) *He* did not say 32 but 62 : but our types (more correctly) made it read 32.

(*c*) We intimated in our former answer, and now aver most positively, that we have frequently produced rapid ebullition of water, with a copious escape of vapor, till by the consequent reduction of temperature, ebullition was prevented by congelation.

(*d*) It is difficult to know what is meant by *steam* at 100°, unless the atmospheric pressure is removed ; and in that case, its rarity may approach infinity under any temperature. Under the atmospheric pressure, there can be no such thing as steam below 212° : but *vapor* only, consisting of particles floating in air.

In conclusion, we remain firm in the opinion that water may be evaporated more than twice as rapidly under a partial vacuum, with equal fuel as under atmospheric pressure.—ED.

Boiling Ponds in New Zealand.

On the edge of a great swampy flat I met with a number of boiling ponds ; some of them of very large dimensions. We forded a river flowing swiftly towards the lake, which is fed by the snows melting in the valleys of the Tongariro. In many places in the bed of this river the water boils up from the subterranean springs beneath, suddenly changing the temperature of the stream, to the imminent risk of the individual who may be crossing. Along whole tracts of ground I heard the water boiling violently beneath the crust over which I was treading. It is very dangerous travelling ; for if the crust should break, scalding to death must ensue. I am told that the Roturua natives, who build their houses over the hot springs in that district, for the sake of constant warmth at night, frequently meet with fatal accidents of this kind ; it has happened that when a party have been dancing on the floor, the crust has given way, and the convival assembly have been suddenly swallowed up in the boiling cauldron beneath. Some of the ponds are 90 feet in circumference, filled with transparent pale blue boiling water, sending up columns of steam. Channels of boiling water run along the ground in every direction, and the surface of this calcareous flat around the margin of the boiling ponds is covered with beautiful incrustations of lime and alum, in some parts forming flat saucer-like figures. Husks of maize, moss, and branches of vegetable substances, were incrusted in the same manner. I also observed small deep holes or wells here and there amongst the grass and rushes, from two inches to as many feet in diameter, filled with boiling mud, that rises up in large bubbles, as thick as hasty pudding ; these mud-pits send up a strong sulphurous smell. Although the ponds boiled violently, I noticed small flies walking swiftly, or rather running, on their surface. The steam that rises from these boiling springs is visible at a distance of many miles, appearing like the jets from a number of steam-engines.—*Angas's Scenes in New Zealand.*

THE WEATHER, &c.

WEDNESDAY, MARCH 31st.

	HOURS, A. M.									HOURS, P. M.									
	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10
Therm.	—	—	33	33	33	33	32	32	34	35	36	37	36	34	33½	32½	31	29	—
Wires,	—	—	49	49	49	49	49	48½	50	51	51	52	50	49	48	48	48	46½	—
THURSDAY, April 1st.																			
Therm.	—	—	23	25	28	30	32	34	36	36	38	39	39½	36½	33½	32	—	—	—
Wires,	—	—	45	47	49½	50	51	52	52½	52	52½	53	52	50	48	48	—	—	—
FRIDAY 2d.																			
Therm.	—	—	—	34½	36	37½	39	40	43	45	47	49	50	49	47	44	43½	40½	—
Wires,	—	—	—	49½	51	52	52½	53	54½	55	56	57	57	56	54	52	51½	49½	—
SATURDAY, 3d.																			
Therm.	—	—	35½	36	42	44	46½	49	50½	53	54½	56	57	51	48	45	43½	42	40
Wires,	—	—	49	50	53	56	57½	59	60	61½	63	64	64½	58½	56	53	51½	51	50
SUNDAY 4th.																			
Therm.	—	—	—	—	42	44	48	49	50	50	50½	—	—	—	46	44	43	42	40
Wires,	—	—	—	—	52	54	56½	56	57	56	56	—	—	—	52	51	50	50	49
MONDAY 5th.																			
Therm.	—	—	—	41	49½	47	48	49½	50½	51	51½	52	52	51	49½	47½	—	—	—
Wires,	—	—	—	52	54	55½	56	57	57	57	57	57	57	56	54	53	—	—	—
TUESDAY, 6th.																			
Therm.	—	—	—	43	43	42½	42	44	46	46	46	46	45	45	43½	43	43	44	44
Wires,	—	—	—	52	52	51½	51	53	54	54	53	53	52	52	51	51½	52	52	52

[*Equilibrium.*

REMARKS.

Wednesday, March 31.—Morning cloudy.—Snow fell the previous night to the depth of two or three inches. Thursday, April 1—Morning clear—evening cloudy. Friday, April 2—Morning cloudy—snowing at 6 A.M. and snow on the ground. Rain from 7 30 to 9 30 A. M.—Afternoon and evening clear. Saturday, April 3,—Sky clear all day. Sunday, April 4. Scattered clouds all day. Monday, April 5—Sky clear all day ; light clouds in the evening at 11 P. M. thermometer 44—wires 51. Tuesday, April 6—Rain from 6 A M , to 8.15, then turned to hail for about five minutes ; then rain for about 20 minutes—then came a little hail, and continued raining until 10 A.M. Chain clouds at 12 and 1 P. M. ; commenced raining again at 4 P. M., and continued all the evening. E MERIAM.

Brooklyn, April 6th, 1847.

Singular Weather.

A correspondent writing from Albion N.Y., states that on the 30th ult., at 6 P. M., there was at that place a violent snow storm with thunder and sharp lightning ; wind from the south east. It will be seen by our meteorological table that on that evening from 6 to 10 there was a rise in both thermometer and wires, though both at an equilibrium, which continued for nearly 17 hours.—ED. SCI. AM.

RAILROAD INTELLIGENCE.

Hudson River Railroad.

Two routes for this Road have been suggested, one passing immediately along Verplanck's Point near the Hudson, and the other a few miles east of the Point, and the people on both routes are striving to obtain the selection of that nearest their own locality. The directors, however, will probably be governed in their choice by what promises to be of the greatest interest to the company, and the vast amount of freight afforded by the brickyards, at and near the point, is calculated to have a weighty influence on their decision.

Harlem Railroad.

This company have nearly completed a new Engine House above 31st street, of gigantic proportions. It is of brick, with sixteen sides, and three entrances. Its diameter is 126 feet, that of the turn tables 35 feet, and the height of the dome from the ground 54 feet. The building will accommodate 16 engines with their tenders. In the rear of the main building, the foundations are being laid for a machine shop 100 feet by 40.

Portland and Bangor Railroad.

The enterprising citizens of Bangor Me., are determined on having a railroad direct from Bangor to Waterville, to meet the Kennebeck Railroad from Portland. A meeting of the Androscoggin and Kennebeck Railroad Company, was held at Winthrop on the 5th ult., to organize. The meeting is represented to be the largest one of the kind ever held in Maine. 8750 shares had been subscribed—5 per cent. had been paid in—and a resolution was passed, by acclamation, in favor of a union at Waterville, of the Androscoggin and Kennebeck, and the Penobscot and Kennebeck Railroad Companies, by which a continuous line of Railway from Bangor to the Atlantic and St. Lawrence Railroad, will be secured. The subscriptions to this road now amount to $805,000. The Directors have laid an assessment of five per cent, on the stock to commence the work with. It is intended to grade the whole road from Portland to Augusta the present season. If this is done, the track will be ready for the cars a year from next fall.

Syracuse and Oswego Railroad.

The capital stock for this road is all subscribed, and the ground will be broken this spring. It will greatly add to the prosperity of Syracuse and Oswego.

Boston, Concord and Montreal Railroad.

There is now every prospect of this road being prosecuted vigorously. It is expected that 18 miles from Concord to Sanbornton Bridge, will be fit for use by July next. Nine miles more will early be finished, extending to Meredith bridge, and the remaining distance to Plymouth, making 50 miles, will be pushed to completion, which it is thought will pay well by its local travel.

Macon (Ga.,) and Western Railroad.

A correspondent of the Savannah Republican says that the stockholders of the Macon and Western road have determined, in conjunction with the people of Columbus, to construct the railroad to Columbus forthwith. It is to be built for cash, and will be completed by the first of January, 1848, if possible.

A capital stock of the Richmond and Danville Railway Company is $1,500,000 ; and the State of Virginia takes three fifths of it $900,000—leaving only $600,000 to be subscribed by individuals.

Thirty miles of the Saratoga, N. York and Washington Railroad Co., road, from Saratoga Springs to Fort Ann, have been let to contractors to be completed by the 1st of July, 1848, for $448,000, inclusive of iron.

A Boa Constrictor.

In the marshes of the valley the boa constrictor is often met with of considerable size. It is not uncommon throughout the province, particularly by the wooded margins of the lakes, marshes and streams. Sometimes they attain the enormous length of 40 feet,—the largest I ever saw at this place, but it was not alive. Some weeks before our arrival at Sape, the favorite riding horse of Senhor Lagoeira, which had been put out to pasture not far from the house, could not be found, although strict search had been made for it all over the fazenda. Shortly after this, one of the vanqueiros, in going through a wood by the side of a small river, saw an enormous boa suspended in the fork of a tree which hung over the water. It was dead, but had evidently been floated down alive by a recent flood,—and, being in an inert state, it had not been able to extricate itself from the fork before the water fell. It was dragged out to the open conntry by two horses, and was found to measure 37 feet in length. On opening it the bones of a horse in a broken condition, and the flesh in a half digested state, were found within it, the bones of the head being uninjured. From these circumstances, we concluded that the boa had devoured the horse entire.—*Gardner's Brazil*

© 1847 SCIENTIFIC AMERICIAN, INC

NEW INVENTIONS.

Elastic Locomotive Fender.

Mr. Martin Keenan, of Woonsocket, R. I., has invented a plan which for aught we can see, may contribute much to the safety of locomotives and railroad trains in general. it consists of a strong but pliable bow projecting forward ten or twelve feet from the sides of the locomotive, and forming an arc or semicircle in front. The rear ends of the two sides of this bow fender, are so connected to a series of stout spiral springs, under the side-beams, that in case of concussion they will resist the entire momentum of an ordinary train before the front of the engine comes in contact with the obstacle. In case of coming in contact with a team or carriage, by its gentle elasticicity the fender will generally remove them from the road without smashing. This invention has not yet been put on trial, nor have we received a full description, and can give no further opinion on the subject than to say that if it can be made sufficiently strong, and elastic, it will prove exceedingly valuable.

Loom for Cylindrical Cloth.

A very curious piece of mechanism in the shape of a loom for weaving cloth in a cylindrical form, and suitable for bagging, has been invented by Mr. Henry Pease, of Clarkson, N. Y. The cloth made by this loom is in the right form for meal bags and without seams.—The peculiarity of the loom is such as to admit of two sets of warps so arranged that when the shuttle has passed through between the two halves of the upper warp, it is returned between the two halves of the lower warp, and the two warps being kept in contact with each other, the two webs are united at both edges, thus forming a continuous hose. The invention is original, and we think the patent there must prove valuable.

Heat Without Fuel.

Important as cheap fuel may be, to be able to do without it altogether, is more important still. A Hungary chemist has taken some promising steps towards making this possible. He places in contact two iron plates and a copper cylinder, highly polished, turning on an axis at the end of a lever, with a balance weight at the other end, to keep the plates in contact, when by means of a very simple apparatus and trifling exertion, a glowing red heat may be produced in five minutes. So says an exchange.

American Telescope.

Mr. Lewenburg, of Williamsburg, has exhibited in this city an eight and a half inch retracting telescope, fourteen feet long, made by himself, which he offers for $5,000. This is about half the price of the best foreign instruments of equal size and capacity.

Sundry Improvements.

Mr. L. T. Talbot of Taunton, Mass., has furnished us with a descriptions and sketches of a variety of improvements of his own invention, in connection with the lock and hinge business, and of which we give the explanations nearly in his words, premising, however, that most of them are new and well calculated for utility and convenience.

FIG. 1. FIG. 2.

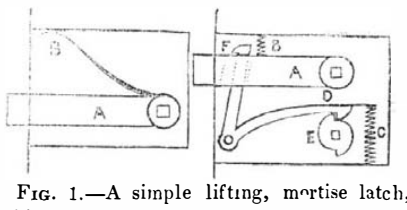
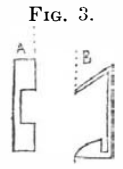


FIG. 1.—A simple lifting, mortise latch, with a sunk catch. A the latch, B the spring, made fast to the latch and pressing against the upper part of the casing or box. The whole is of cast iron with either iron or brass face,—can be manufactured and sold at a handsome advance upon cost for $1,58 per dozen, iron face, or $1,87 1 2 brass face. What I claim in this, is the combination or attachment of a knob to the axle of a latch, thus dispensing with the use of a dog, and avoiding much friction.

FIG. 2. The same as the last, with a lock attached, making a locked-latch. A, the latch, B, a spiral spring acting upon the dog D, causing it to press upon the ratchet cam E. Turning the cam half round throws the end of the dog F, over the top of the latch and prevents its rising, making a bolt of the latch itself. Sold at $2,25 per doz. iron face, $2,75, brass face. Here I claim the latch turning upon its own centre, and the use of the ratchet cam.

FIG. 3.



A. the face or front, and B the side view of the catch used in both the above kinds of lifting latch. The dotted lines represent the edge of the door post.

FIG. 4. FIG. 5.

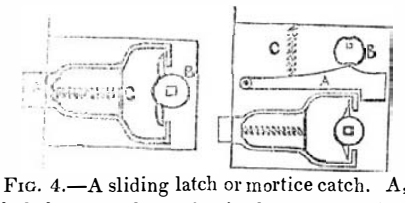
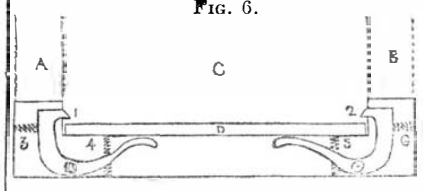


FIG. 4.—A sliding latch or mortice catch. A, the bolt operated upon by the dog B. C, a spiral spring (attached to the bolt at C, and to the latch casing at the other end) causing the bolt, when remaining at rest to project from the edge of the door.

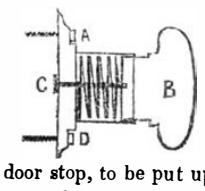
FIG. 5.—Same as the last, with a lock attached. The bolt is locked by means of the dog A being operated on by the cam B. C, a piral spring to hold the dog against the cam It is now locked, but by turning the cam one half round, the dog is drawn from the space between the latch and the latch-casing, allowing it to be pushed back. Figs. 1 and 2 will not allow the knob to be turned but in one direction, i. e. *from* the edge of the door. Figs. 3 and 4 allow it to be turned in any direction.

FIG. 6.



A door sill to prevent the cold air from entering a room under the door. Let A and B represent the door posts, and the door C, be hung upon the post A. Upon closing the door it presses upon the spurs 1 and 2 which project from the inside of the door frame, throws them in, and consequently raises the iron bar D, (that at other times is sunk in the sill or threshold to a level with it) into a groove fitted for it in the bottom edge of the door. The spiral springs 3, 4, 5 and 6 to return it to its proper position when the door is opened.

FIG. 7.



A spring door stop, to be put upon the base board of the room for the door to strike against when fully opened. This is placed two feet or more from the hinge side of the door. A D, is a cast iron collar or case. B, a mahogany or other knob fitting into the case, and prevented from coming out of it by means of the screw C. Around the inside of the case is placed a spiral spring which acts upon the knob. Price 15 cents each, or $1,50 per doz. It is fastened to the base board by means of common screws at A and D, a hole being made in the base board to allow the screw C to play into when the knob is pressed in.

FIG. 8. FIG. 9.

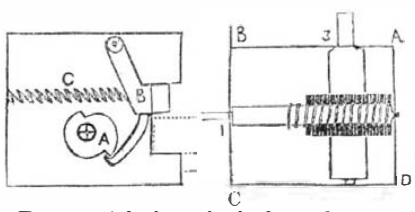


FIG. 8.—A lock catch, the key and means of fastening the door being within the catch, that is, made fast to the door post. The dotted lines represent the latch. A, a ratchet cam that throws the dog B over the end of the latch and prevents it from rising. C, a spiral spring holding the dog against the cam. This is for the same purpose as Fig. 2. and in some cases, though not in general, it is preferable.

FIG. 9.—A revolving pintle for opening or shutting a window blind from the interior of the house, without having to raise the sash. It consists of a cast iron or metal plate box, enclosing a screw wheel and endless screw, or screw shaft. It is attached to the window casing by screws, passing through the flanges B and C. The head of the pintle or screw-wheel shaft 3, is square, and is so arranged as to enter a square socket in the hinge of the blind, while the screw shaft I extends through the casing to the interior of the house, and terminates in a knob whereby the inmates may at any time open or close the blinds without opening the windows.

A New and Important Invention.

A few days since, we stepped into the card manufacturing establishment of Messrs. Earl & Eames, in this town, says the Worcester "Bay State F. & M. Ledger," and were shown a new card-setting machine which is about being introduced to the world, and which it is confidently expected will out-strip every thing hitherto invented in this line of manufacture. This machine, which is quite new, simple and superior, is the result of long and arduous application on the part of its skillful and ingenious inventor, Mr. Halvor Halvorson, formerly of Leicester, who has devoted some two years to the work, often under circumstances of the most discouraging embarrassment. We hope, however, that the successful ultimate to which he has at last arrived, will reap for him a reward that shall hereafter sweeten the remembrance of his toil with something of tangible reality.

The machine to which we refer occupies about half the space of the common one in use, is driven with a comparatively small amount of power, two cams only, instead of ten as used in other machines, being employed together with a proportionate reduction of labor thro' all its ramifications. The consequent reduction of friction produces its legitimate reduction of requisite power. In addition to this evident advantage, there is a perfect adaptation of the several parts of the machine one to the other, by which no two motions are in operation at the same time, or in other words, no motion commences till the preceding has ceased, and as no motion can proceed without meeting a certain degree of resistance from whatever it has to perform, it is evident that as the resistance is diminished, there is also a proportionate reduction of power; hence the difference of superiority is easily understood, when it is known that only four out of the ten cams in the old machines are in operation at the same time. It may be argued from this statement that if all the motions are in rotation the machine cannot execute as much work in a given time as if four motions were in operation at once, but it must be remembered that the effect of the motions in the old machines must one precede the other, and that it is only in consequence of complication and weight of parts, and length of motion, that it becomes necessary at one point in the revolution of the so called cam arbor to overcome the combined resistance of the four motions, whereas, in this, the motions are comparatively short, the parts which accomplish them light and simple, and their course is not curved or inclined, but in a direct line; and as no adequate reason can be given why an arbor with less resistance can not revolve with the same velocity as another, and as this machine sets two teeth or four points in the leather at the same instant, performing all the motions for pricking the leather, furnishing the requisite length of wire, cutting it off, bending it in proper form for insertion into the holes, and finally giving the second bend or angular form, and all this by a single revolution of the cam arbor, thus accomplishing a hundred per cent. more work than the common machines, the objection is fully answered. Did the machine possess no other advantage, this of itself would be sufficient to produce a revolution in card manufactures.

But it possesses other superiorities. Its construction is such as to adapt it equally to filleting and sheets of any dimension and form, to common and fancy cards, without the usual resort of enlarging feed rolls, &c., and to the purpose of adjusting the length of the wire to the required length of the teeth by means of a small screw. Another important feature in this machine and one which will be understood by the manufacturers of cards and of cotton and woolen goods, is that it obviates the inconvenience of being always confined to one established distance between the staples set in the leather, which has heretofore been avoided at the great expense of racks fitted on purpose. This difficulty is overcome in the machine of which we speak by two screws which give any required distance between the staples, and that with perfect uniformity, at the same time adjusting the twill, as it is called, in its true proportion. Those who are conversant with the tedious process of regulating the twill in the old machines with the complex machinery of the twill wheel, will readily appreciate the advantage here gained without a minute description from us. The whole labor, often so perplexing, is here entirely obviated, and a single screw will regulate the machine to any number from 2 to 12 with the utmost precision. The machine will also run either with an open or a cross belt, the driving pulley always running in one direction, or in other words, it is immaterial which way the cam arbor is turned, the operation of the machine being in either case equally perfect. Those who are familiar with card setting machines, will, we think, perceive that this novel feature has its practical advantages. It must be obvious to every one, that when one acting face of the cam has become worn beyond use, the driving belt may be reversed and the other face of the cam used, which in addition to the great simplification of the whole machine, and the reduction of friction, will render it extremely durable, and give it a favorable introduction to manufacturers.

We understand that Mr. Halvorson has taken measures to secure Letters Patent in the United States, and contemplates doing the same in Europe. He has sold the entire right for this and other machines of minor importance of his own invention, to Messrs. Earl & Eames, who are among our most enterprising manufacturers. The other inventions referred to are important. One of them accomplishes a superior preparation of leather previous to being set, which in connection with a supply of the new machines and the contemplated extensive enlargement of their establishment, will, we hope, win for them unbounded patronage. Much credit is due to Messrs. Earl & Eames for their enterprise in encouraging these inventions. When Mr. Halvorson had partly completed an imperfect model of the machine we have described, and when others had refused to extend to him the aid without which his labor would never have reached a successful issue, unless indeed he had gone to work in some shop and earned a little to supply an empty flour barrel and a still more empty pocket, a thing which he was forced to do in two or three instances, these gentlemen generously furnished him with the means of pushing along his enterprise, and the result will doubtless prove of great value and importance in various manufactures.

The Moon.

Sir John Herschel, at a late meeting of the British Association for the advancement of science, expressed the opinion that the temperature of the moon's climate must be very high, "far above that of boiling water." And the reason given is, that its surface is exposed for fourteen days at a time to the unmitigated and continual heat of the sun. At the full, and for a few days afterward, the moon must certainly be the reflector of some heat to the earth. Sir John has no doubt of the fact, but as it has the character of culinary rather than solar heat, that is to say, "it emanates from a body below the temperature of ignition," it will be arrested by the upper strata of the earth's atmosphere and thus absorbed. There its only effect will be to convert visible clouds into transparent vapor. He asserted that the phenomena of the rapid dissipation of clouds in moderate weather, soon after the appearance of the full moon, could easily be accounted for on this principle, and that his own observations confirmed the theory.

It is stated in an exchange that "Gen. Tom Thumb" weighs 15 lbs., and is only 20 inches high. Well, suppose he was to weigh 7 lbs., and ten inches high, would he be any *greater* than at present?

© 1847 SCIENTIFIC AMERICIAN, INC

NEW YORK, APRIL 10, 1847.

How very Astonishing!

"By simply striking at one end of the telegraph, a set of keys, each of which answers to a letter or mark of punctuation, a communication will be printed at the *other end of the wires*"! This is a sentence from the notice published in the Trenton State Gazette, of the State Prisoner's invention of House's telegraph, and copied into a large number of wonder catching papers. How wonderful it is:—that touching a key at *one end* of a wire, should print a letter, or make a character at the *other* end! The idea appears to be altogether new to many sagacious editors, notwithstanding the various frequent and repeated publication of descriptions of this principle during the last three years. We have on hand at least five different plans for telegraphic printing, invented and furnished by as many different persons, residing in different parts of the country. Most of these are very ingenious, and calculated to answer the purpose: but which will finally excel and take the preference, remains to be decided One of these inventions (by Mr. Ellis of Springfield) is arranged to print in regular lines across a sheet of letter paper; and if the invention succeeds in its operation, whether the operator is 5 feet or 500 miles from the paper, he can print fair lines of Roman characters twice as fast as a good penman can write them Good mechanics are employed on the subject, and important results will soon be ascertained.

Changes in Trade.

Few persons are aware of the changes that are continually taking place in trade and commerce—witness the following:—

Mr. Sturges of Boston, in a lecture delivered some two or three years ago, on trade and finances, he referred also to the singular changes of fashion. Nankeens, said he, were once imported in large quantities. As late as 1820 there was one million of dollars worth imported; now there is none. In 1806 Canton crape was first used; in 1810 ten cases were imported; in 1816 there was 12,000 pieces; in 1826 the importations amounted to a million and a half of dollars; and in 1844 the article was not imported. Yet the country has lost nothing by this caprice of fashion, as our countrywomen appear as lovely in ninepenny Lowell calico as in Canton crape. Silk was once imported in large quantities from China; a cargo of nearly a million of dollars' worth once was landed in this country; and now the whole yearly importation from China amounts to less than $100,000. Great changes have also taken place in regard to the pay of our Chinese importations. In 1818, $7,000,000 in specie were carried to China, but now our purchases are paid for in bills of exchange on England, of the opium trade. The Fur trade was commenced in 1787; and in 1802 there was fifteen American vessels engaged in it, and now it has ceased altogether.

Palmer's Computing Scale.

Of all the various revolving manuals which have been introduced for the convenience of business men, we have seen nothing equal in real and extensive utility, to the computing scale invented by Mr. Aaron Palmer, and which ought to be owned and understood by every business man in the country, and introduced in every school. It consists of a logarithmic combination of numbers and is designed as an assistant in all arithmetical calculations. All the problems in arithmetic can be readily solved by it, and generally with expedition. A specimen may be seen at this office and we have made arrangements to receive and answer orders for them, and send them by express or otherwise to distant cities or towns They will be furnished, accompanied with ample explanations, for $3.

The Chicago Journal publishes a report that the box of specie ($5000) stolen from a stage coach near La Porte, Ia., had been found in a cellar at Carlisle Hill.

More Moon-ology.

Whenever the Moon and the Pleiades or seven stars come into apparent conjunction or approach nearest to each other, which occurs during each lunation of the moon there will be, in winter, cold and frosty, and in summer, either cool or frosty weather.

My father's great-great-grandady, enjoined upon his son to observe the above theory, and charged him strictly to transmit it to his posterity, as a matter of great interest to the welfare of mankind. Accordingly it has been duly transmitted down to my care with the like injunction And in order to transmit this theory not only to my own posterity, but to every body else's, I wish you to print it in the Cultivator along with the other wonderful doings of the Moon.

With all my means of observation, and with the accumulated observations of antiquity, I have not been able to prove conclusively, the truth of the above theory. But during the winter season, when the conjunctions take place above the horizon, the theory will generally hold good in the ratio of 4 times to 3. In the summer time it will generally be as 3 to 3. So you will perceive, in one year it will stand as 7 to 6.

Can any body explain the cause of this remarkable natural phenomenon? Has any body else ever made similar observations? It has been recently discovered that the principal star in the Pleiades is the centre sun of the Universal Universe! Perhaps this fact may aid in developing a rational theory of the cause.

☞Can it be possible that the Moon intercepts the rays of heat from the central sun?

Yours with respect, JOHANNUS.

—*Ohio Cultivator.*

Manufacture of White Lead.

The capital invested in the manufacture of white lead in the United States amounts to upwards of $2,350,000. About one thousand men, as laborers, are employed in the business, and 42,000,000 lbs. or 600,000 pigs lead, all of which is the produce of the Missouri and Illinois mines, in the fabric. The white lead manufactured in the United States is *not inferior* to that of any other country, and has attained its present goodness within the last three years. The price of pure lead in oil in 1820, at which time there were but two factories in the country, was 14 cents per lb. Since that time it has been gradually declining in price, and is now only worth 6 1-4 cents.

Litigation.

Everlasting litigation must be expected—and why? We make lawyers law-makers.—Lawyers are ever the most prominent politicians. Lawyers, in making laws, make them like the famous shield—about which two valiant knights fought—with two faces, with two aspects. There is always room for argument as to the meaning of the law, as the lawyers, having an eye to business, intended there should be. We would rather have a law framed by half a dozen Westchester county farmers than by half a dozen of the most eminent lawyers of the city. It would, we are satisfied, be much more clear and understandable

Copper.

The consumption of copper in the United States is about 13 million pounds annually. It is obtained—

	Pounds.
From Chili, in pigs	6,500,000
From England, in sheets	3,500,000
From England, in cakes	500,000
From Mines in the U. States,	500,000
Old copper, from various sources	1,500,000
In all, about	12,500,000

It will be seen that nearly all the pig or raw copper imported is obtained from Chili, (erroneously calle *Peruvian Copper* in this counry,) and that England supplies us in refined copper and copper sheathing with more than one-fourth of all the copper consumed in the United States.

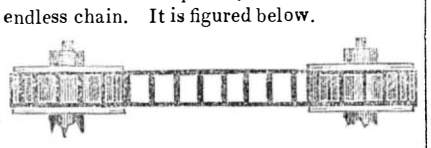
A Heavy Casting.

Jagger, Treadwell & Perry of Albany, made one day last week for Messrs. Corning, Horner & Winslow's new rolling mill, a casting which weighs twelve tons. It was the rim of a wheel—the arms of which will weigh six tons—making eighteen tons for the wheel.

GUILDERLAND, March 29, 1847.

Mr. Editor.

Having occasion to erect an upright shaft of great power, to be driven by another upright at 20 feet distance, I was led to reflect on some cheaper way of driving it, than the old and expensive one of bevel wheels and line shafts. A strap strong enough to do the work efficiently would be too heavy and expensive; and it occurred to me that by placing a cog wheel on each shaft and forming an endless rope ladder with wooden slats to pass around them, the slats of the ladder fitting between the cogs, the shrinkage of the rope might be remedied by allowing sufficient slack, which might be managed by a tightener, the same as a belt.—The cost would be trifling compared either with belting or gearing. It would be stronger than gearing, because half of the cogs in each wheel would bear the strain at once, while in the other way of matching the cogs only two or three are used at once. There are many places about machinery where it could be used to advantage. Is there novelty or merit enough about it to secure a patent, or is it too near the endless chain. It is figured below.



The rotary drying machine, described in No. 23, is not a new machine by any means, but was described in the Albany Cultivator of April, 1845, by E. N. Horsford, as a Grain cleaning and drying machine, invented in England, the only difference being the introduction of warm air from a furnace.

Would it not be very interesting to your readers if you would give them a description of a kiln for drying grain, of some of the improved plans lately patented; for instance, Messrs. Gold's, or any other that you think best

Yours, J. M. BATTERMAN

ANSWER.—It you can find any efficient and convenient method of attaching the slats to the ropes, you will have accomplished what others have attempted in vain, and will be entitled to a patent thereon. But that will constitute the only novelty of the invention.

The rotary dryer described in No. 23, will prove an excellent dryer for corn, &c., and has sufficient novelty to entitle it to a valid patent. —ED.

Slag and Iron.

Relative Proportions of Each.

The information contained in the following extract from a letter written by MR. WILLIAM FIRMSTONE, of the Glendon Iron Works, at Easton, Pa, may be useful to some of our readers. We are desirous of making the Journal useful in this line, and shall be much obliged by any communication giving useful information on the subject.

"I have been frequently asked how much cinder is usually made in making a ton of pig iron; having had occasion to weigh all the cinder made at our No. 2 Furnace for the last six months, I find it to exceed in weight the iron made about one-fifth. I annex a statement of the total number of tons of materials used in the Furnace, from Sept. 6, 1846, to Sept. 6, 1847—being 26 weeks

Coal, iron ore & limestone used,	10,156 tons.
Pig iron made	2,085½ "
Slag, or cinder	2,512 "
	4,597½ "."

—*R. R. Journal.*

Linseed Oil.

At the last census there were 840 Linseed Mills in the United States, and they now number from 1000 to 1200 moved by water or steam. They consume from 20 bushels of seed daily up to 800, according to their capacity.—Taking the daily consumption at only 10 bushels each, and they will consume in a year three millions of bushels. The whole annual export of flaxseed does not exceed 30,000 bushels, (that is, the matured seed to Ireland,) which is only one bushel out of every *hundred* of the crop, the remaining 99 bushels being consumed in making oil. The imports of linseed are about 400,000 bushels, one mill sends 40,000 barrels of cake to London yearly.

Out of 60,000 persons who made the last pilgrimage to Mecca, 20,000 have died of the cholera.

The Romance of Insect Life.

We take the following beautiful extract from a Historical lecture by Judge Carlton, of Georgia.

"The earth teems with mysteries—the sky shines with them—they float in the air—they swim in the deep—they flash from the dark robed clouds—they whisper in the gentle tones of the summer wind—they speak in trumpet tones, in the voice of the tempest and the thunder. Cease thy longings for the ancient days, oh, dreamer! Close thy book and look about thee upon the volume of nature. See there, before thee, is a tiny insect that thou canst scarce distinguish from the grains of sand that surround it—watch it—it moves on with an energy and an instinct that enables it to overcome or avoid all obstacles. See—it has seizsome object larger than itself, and still it goes bravely on—nothing daunts it—nothing stops it—tread it under foot, (if thou canst have the heart to attempt such a murder,) and it will rise up again beneath the ocean of sand and turn once more to its labor. Dost thou know it? It is the ant, that lion-hearted ant, toiling amid the heat of summer; and through the season's brightness and its warmth are bringing up and producing ten thousand enjoyments for the little traveller, he is busy gathering together his provender for the long winter time, when frost, and snow, and cold shall have locked up the granaries of nature.

Thou wilt tell me, that I am mocking thee, that thou canst see this daily and hourly; and is this a mystery therefore? If thou hadst read in those ancient legends before thee, of an insect so courageous, that it would attack an animal of ten thousand times its magnitude; of industry so indefatigable, that it would climb house tops and mountains to pursue its course; of perseverance so unflagging, that though repulsed a thousand times, it would still return and overcome the obstacles that impeded it—thy eyes would have sparkled with interest and amazement; it is because it is constantly before thee—because it belongs to the present time—that thou lookest so disdainfully upon it. When did the knight errants of thy heart do half so much? When did their bosoms beat as high with valor and determination as this poor insect? "But it has no loves—no burning jealousies—no blood stained victories!" How knowest thou that? I warrant thee, even that tiny breast has grown gentler for some fond one that lived within its little world; that its blood has flowed quicker when some Adonis ant has flirted round the little coquette; that its path has been stained by the trophies of its mimic battles.

To the Public.

In consequence of the great increase of our circulation in the New England States. we have been induced, for the benefit of our subscribers in that section to establish a Branch Publishing Office at Boston, Mass. We would, therefore inform the public, that hereafter the Scientific American will be published at No. 13 Court street, Boston, and No. 128 Fulton street, New York—the principal office remaining at New York.

To New Subscribers.

Those subscribing to the Scientific American will be furnished, if desired, with all the back numbers of the present volume. Bound together at the end of the year, they will form a handsome and valuable work.

In Chicago, $7,500 have been contributed to the relief of Ireland and Scotland, a half dollar for every man, woman, and child in the place.

THE
SCIENTIFIC AMERICAN.

Persons wishing to subscribe for this paper, have only to enclose the amount in a letter directed (post paid) to

MUNN & COMPANY,

Publishers of the Scientific American, New York City

TERMS.—$2 a year; ONE DOLLAR IN ADVANCE—the remainder in 6 months

Postmasters are respectfully requested to receive subscriptions for this Paper, to whom a discount of 25 per cent will be allowed.

Any person sending us 4 subscribers for 6 months, shall receive a copy of the paper the same length of time

© 1847 SCIENTIFIC AMERICIAN, INC

GOSHEN, March 10, 1847.

Mr. Editor.

I have troubled several persons for information to solve my doubts and enquiries in relation to certain facts, which I will-explain. I have just a smattering of chemistry and other things to enable me to understand tolerably well explanations in relation to general philosophical subjects, but not enough to convey information clearly upon those subjects. As we are thus introduced to each other, now to the subject.

Some years ago I was sitting in my office with an anthracite coal fire, which was too hot for the weather, I went out and gathered up as much snow as my two hands would hold, and lifting the cover from the stove threw it in and shut down the lid, when within two or three seconds a gush of steel colored flame as large as a half-peck measure come out from the top and another of like size and appearance from the front. I sat down to reason thus: that the snow was converted to water and that to steam and that to its constituents, oxygen and hydrogen, and the hydrogen made the flame; but what became of the oxygen? Did that unite with the coal, and if so, was the weight or body of coal increased by the amount of oxygen absorbed? Now what I want, is to burn water, for that is cheap fuel. A stream of steam passed through a red hot gun barrel decomposes the steam and the hydrogen burns with flame. One fire engine in a large and hot fire increases the combustion, from the same cause, probably. Some Doctor in Boston seemed determined, some years ago, to burn steam. Water contains the elements of good kindling wood, and perhaps my mode will answer. I,want to see the effect of a stream of steam working at a pressure of two or three atmospheres, brought down the side of a high pressure boiler and introduced under and among anthracite coal at a high temperature. Would'nt that make a blaze and increase the draft without a blower, and is not that a great desideratum in steam engines? Would a stove full of coal and a tea kettle placed therein warm a room all day, do the cooking and light the room at night? I suppose not; but I don't know why. I have had no means of trying the experiment with any satisfactory result; but steam at 212° does not deaden a hot coal fire perceptibly. If an iron boiler becomes deficient in water, and the boat by careening exposes the side of the boiler to a red heat, would not that destroy the union of the constituents of steam, the oxygen uniting with the iron and leaving the hydrogen to kick its way out through the side of the boiler, producing an explosion. I did burn steam in my stove, that is certain, and it can be done again—can you tell any better way? Perhaps you can at once detect the fallacy of my reasoning.

I asked you some questions a few weeks ago in behalf of a neighbor, who wants the water of a spring brought to his house. Since I got your answer in the Scientific American, I have examined the spring, and there is in 15 or 20 rod 6 or 8 feet fall with a discharge of water. Well, I don't know that there is a "smart chance" of a brook, but suppose there runs 20 gallons a minute and with an overshot wheel of 6 feet, how much water conld be raised 35 feet in an hour probably?

You ought to be thankful that you have not many correspondents as prolix and desultory as,

Yours, respectfully,

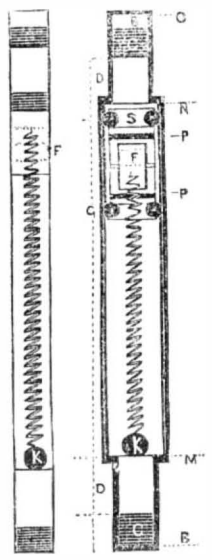
H. W. ELLIOTT.

ANSWER.—We may answer your remarks and queries in general terms, on the subject of burning water by saying that you are on a track that will soon lead to important discoveries, but which must be attained by laborious and perhaps expensive experiments. Common steam will produce flame and facilitate the combustion of fuel, and emanation of heat, if passed into a coal fire in which there is a quantity of some metallic substance that will imbibe the oxygen, and thus liberate the hydrogen of the steam. We publish in this number a plan in theory, for burning water alone, after having the apparatus once heated by other fuel. With regard to your hydrostatic problem, we will say that with a judicious though cheap arrangement of machinery, 10 gallons per minute with 6 feet fall will raise one gallon per minute 35 feet. The entire expense need not exceed $60.—ED.

Austin's Perpetual Motion.

(*Continued from No.* 28.

FIG. 4. FIG. 5



Now let us examine the resisting force, or opposing power which would be given to this tube in fig. 1, by carrying E above F, when they are in the position as seen in fig. 2. As before stated, E weighs in the water a little more than 120 lbs. It is one fourth of a cubic foot. It is 12 inches long, 12 wide, and 3 thick. One of the largest sides is fastened to the outside of the upper end of F, when F is in the position as represented by fig. 1, F, when in the position as seen in fig. 2, is a little more than 2 cubic feet. It is evident,therefore, that the power, necessary to carry E above F, is eqnal to the perpendicular descent of a little more than 120 lbs., a little more than 2 1-4 feet. Let us now call it 120 lbs., 2 1-4 feet.

When we subtract this opposing power from power which is X during half a revolution,we find the difference to be power which is X during a whole revolution, nearly equal to the perpendicular descent of 240 lbs. 4 1-2 feet. This is nearly equal to 30 lbs. 34 feet. One tube, by a whole revolution of the wheel,gives X during it, equal to 60 lbs., 34 feet. The wheel is 5 feet in length, and has 4 tubes.—Each revolution of the wheel, therefore, gives X during it, equal to the perpendicular,descent of 240 lbs., 34 feet. Suppose a wheel to be 18 feet in length, and to have 16 tubes. Each revolution of the wheel would then give X during it, equal to the perpendicular descent of 960 lbs. 34 feet. Half of this weight, the whole time, is on one side of the wheel about 17 feet from the centre, the wheel being balanced without it, 10 lbs. of it at this distance from the centre, are more than sufficient to overcome the friction of the wheel, and the resistance of the atmosphere.

If, before they begin to ascend, E be carried above F, while under the centre of the wheel it is evident, when they arrive at a point in the tube, near the upper part of the wheel, as high as they go, that they occupy the same position in the wheel, that they occupied when they were the same distance from the other end of the tube, and that other end was at the top of the wheel. No advantage is gained by carrying E above F at the lower part of the wheel, before they ascend. I have computed the opposing power given to a tube, by doing it at this point, merely for the purpose of ascertaining the X of a tube. By the motion of the wheel, E is caused to be above F half the time when they begin to ascend. It can be easily proved by mathematical demonstration, that a tube, by a whole revolution of the wheel, will give as much X without carrying E above F before they ascend, as it would, by doing it.

The hollow of the tubes are round, and all the distance of 7 feet from each end they are just large enough to contain the same quantity of water that they would, if they were 1 foot square. Between these points they are some larger, large enough to allow all the parts to operate. All the tubes are made and furnished alike. There should be no less than 4 tubes in a wheel.

An idea of the form of the out side of the wheel may thus be given. If we take a quart measure which is, from top to bottom, of equal bigness, take off the handle, close the open end as the other end is closed, and put a gudgeon or jonrnal in the centre of each end, it will resemble its outside form Its length will depend upon the size and number of the tubes. The tubes are to be made of cast iron, or any substance suitable for the purpose — The ends should be fastened on with screws, so that they may be conveniently put on and off when necessary. If the air in F should lose its elasticity so as not to operate well, it is to be exchanged for a new supply. Should inconvenience arise from its being necessary to exchange it often, the use of it for this purpose is to be rejected wholly, and in its stead, a vacuum and a helical steel spring are to be used. The vacuum and spring are to be placed in a strong iron vessel. This vessel may weigh a little more than 120 lbs., or it may weigh less, and the difference between a little more than 120 lbs. and the weight of the vessel, may be supplied with lead attached to some part of the frame in which the vessel is placed. The vessel is to be in the form of a quart measure which is, from top to bottom,of equal bigness, the handle being off. The diameter of the spring is to be nearly equal to the diameter of the inside of the vessel. One end is to be fastened to the bottom of the vessel,the other end, when the spring is not compressed, is to extend nearly to the top of the vessel.—Upon the upper end of the spring is to be fastened a moveable cover or follower, made of iron, and as large as it can be, without rubbing too hard against the inside of the vessel, when it goes up and down with the motion of the spring. To prevent the water from getting by this follower into the vacuum, a bag made of India rubber cloth is to be fixed in this vessel in the same manner that one is fixed in each end of each tube, as has been here described. The end of this iron vessel in which the follower is placed, is alternately above,and under the other end of it. The pressure of the water will come on the follower as well in the one position as in the other.

This wheel is calculated to move always very slowly, and to be governed by a regulator. Its velocity is to be increased, and other machinery put in operation with it, by additional wheels. In cold weather to prevent the water in the wheel from freezing, alcohol is to be put in it.

Fig. 5. This represents the form of a tube for actual use. The length of the hollow of it is 54 feet. The distance from L to M is 7 feet, from M to N 40 feet., and from N to O 7 feet. The hollow of it is round. From M to N it is large enough to contain as much water as it would, if it were 16 inches square. Then, of course, the diameter of this part is a little less than 18½ inches. From L to M and from N to O it is large enough to contain as much water as it would if it were 1 foot square.—Then, of course, the diameter of each of these two parts is a little less than 14 inches. B is B in fig. 1., C and C are C and C in fig. 1.—Each C is a little more than 3 cubic feet of lead. It weighs nearly 2016 lbs. (I made the bulk of the lead too small in the other figures.) The carriage to which F is attached is 6 feet in length. By the upward pressure of the water upon the carriage, and upon all that is attached to it, it is carried alternately from M to N and from N to M. It should be prevented from beginning to ascend in the tube until it arrives at a point nearly under the centre of the wheel. This, by many methods,may easily be done. F is F in fig. 1. It is 4 cubic feet when it is as high in the tube as it goes. Then, of course, when it is as low in the tube as it goes, it is a little more than 2 cubic feet. G is the water in the tube between the upper D and the lower D. Each P is a quantity of lead. The weight of P and P, and of the carriage added, is equal to the weight of E in fig. 1, which is a little more than 120 lbs. Each G is an iron wheel nearly 5 inches in diameter. It goes through the side of the carriage, and is fastened to it with an iron pin passing through the centre of the wheel, and through the carriage about half an inch from the outside of it. It revolves on this pin. A crease is made in two opposite sides of the tube. The wheels are sunk about an inch in these creases. They revolve in them when ascending in the tube. K is K in fig, 4. It weighs nearly 120 lbs.

(*To be Continued.*)

There is one grog-shop to every thirty families, in Baltimore.

PORTSMOUTH, March 23, 1847.

To the Editor of the Scientific American:

DEAR SIR:—I read an article in the last Scientific American, headed "The Ocean turned into a water power." The plan presented in the article being similar to one which I invented last Fall, and this being the first notice which I have received of any other person being engaged in a similar work, I wish to make known to you my position in the scheme, and, and will thank you for your opinion of its practicability, patentability, &c., and I should be very happy too, to confer with the inventor to whom your paper alludes, and, if proper, we might unite our ideas and interests in its use. During last Fall I corresponded with a gentleman having a large interest in the consumption of salt at the Isles of Scholes, with a view of putting my plan in operation to raise the water from the ocean for the manufacture of that article, and have delayed the work only on account of the cold season.

My plan embraces, in a great measure, the principles of the Water Ram, acted upon by the force of the waves, instead of a water fall.

I will cheerfully give further views on the subject, if required.

Yours, &c. W. LAIGHTON.

NOTE.—The inventor alluded to resides near Dover, England, but will probably be glad of the chance of co-partnership. We should like those "further views," on the subject, however.—ED.

TO CORRESPONDENTS.

"L. C. of Y."—Your ideas with regard to the apparent advantages which might be derived from a series of chain buckets in place of water-wheels, are generally correct: but unfortunately for the novelty of your invention, endless chains with buckets have been in use nearly twenty years; and an improvement thereon was described with an engraving in the "American Mechanic" five years ago.—Moreover, the vertical pentstock with chain buckets descending through it was invented and patented eight years since, by a Mr. Abbott, and the business of constructing them has been, and still is successfully carried on by Col. Nathaniel Richardson of Philadelphia. It is called the "Hydraulic Engine," and being made wholly of iron, including pentstock or vertical flume, costs from $200 to $350. No air is admitted between the descending buckets, but if it were, it would not occasion resistance, as you suppose, but only diminish the quantity of water, and proportionate power.

"J. M. O'B."—The subject of your invention is popular, and if the invention itself is judicious, there will be no difficulty in obtaining such a contract as you propose. We regret that you had not sent us a sketch and description at once; but you must command your own time for that. With regard to the last subject to which you allude, we answer "all goes well." We expect to hear from you again.

"H. P. of C."—You will find your answer under the head of New Inventions. Let us hear from you again.

"W. L. of N."—There is nothing to prevent your obtaining a patent, if your invention succeeds; and we can furnish you a customer for your patent right, if the plan is not too expensive.

"A. S. of M."—Twenty four cups may be required for the purpose which you mention, though we have never had occasion to use more than 18. cyanuret of potash is produced from prussiate of potash by distillation, thus avoiding the carbon and other foul ingredients. cyanide of silver may be used as a silver wash on some kinds of metallic bases, but it requires a tedious process to apply it in durable thickness. It is generally mixed with whiting.

"J. R. G. of C."—To give you all the variety of intelligence which you require, would cost us at least three dollars, to say nothing of the cost of the engraving; yet instead of sending any compensation you did not even pay your postage; so we must be excused.

"A. N. of M."—Both of your communications are received. Perhaps you are aware that the construction of windmills with a central, vertical shaft, with a horizontal bevel gear at the head thereof, driven by another gear wheel on the wind-wheel shaft, is an old plan. But your mode of mounting the wind-wheel frame on a vertical revolving post, is probably original and patentable. We can see

© 1847 SCIENTIFIC AMERICIAN, INC

no necessity for your arrangement of springs, screws, ratchet and pall on the wind-wheel shaft. There would be no material danger of damage, and if there was it would be better to have the safety arrangement attached to the lower end of the vertical shaft, which would have the same effect.

" J. A S. of P."—Having on hand several kinds of wind-wheels, we do not know to which you refer ; but either the " self regulating" or the " double action," would require to be about 20 feet diameter to work the power you require.

" A. E. M. of H."—There has been no work published, exclusively for the instruction of machinists. But there are various publications on the mechanical science, with descriptions of various machines, and illustrations of mechanical motion. Scribner's " Engineer's Companion," (which we sell for $1 12½ cts.,) contains nearly all the intelligence that a machinist requires, except direct instruction in the process of work.

"M. B. F. of B."—Your water wheel appears to possess sufficient novelty to entitle you to a patent, but we can discover no indications of any considerable utility therein.—The water will naturally press against the outside of the curved channel, by its centrifugal force, and moreover there can be no advantage gained by extending the curved channel or pentstock so far round the wheel.

"H. G. of H."—The ordinary cost of a neat finished lathe, suitable for philosophical instrument making, with drills, rests and other furniture, is $45. The frame is nearly four feet long. Small size iron lathes, without frame or wheel, may be purchased for $16.

"E. B. H. of B."—We find some original and excellent peculiarities in the plan of your rotary engine, wherein it excels the Newark plan, inasmuch as it is susceptible of a more rapid motion; but it has less simplicity of construction. The idea of attaching the valves to the revolving part, is novel to us, though in the multiplicity of rotaries, it is difficult to know what has not been projected. We would suggest that you adopt the cut-off and expansion principle, which may easily be done by carrying the rod of the cut-off valve by a straight groove through the standing plate to the axle, to be operated by double cams thereon. We would furnish an engraving, and give a full description for $5.

"L. A. S. of L "—You are referred to the invention of the key-seat machine, for information concerning the cost, weight and time required to furnish one; as there are none made in this city. Engine lathes are manufactured to order on short notice by John Jones, No. 54 Centre street, or F. J. Austin, No. 31 Ann street.

"T. G. S. of N. Y."—Your proposed improvement in saw mills has sufficient novelty, but is not practicable on account of the choking of the teeth with chips and saw-dust before they cut through the timber In slitting two inch plank, each tooth, if made in hawk-bill shape, may cut an eighth of an inch, if the plank is free from knots or cross-grains; but the forward cut of a saw is limited by the capacity of the recess between the teeth, to accommodate the chips, &c.

"E. W. of A."—Your rotary engine is practicable and has some excellent features, particularly that of admitting the steam through the axle, (in this respect like Avery's engine, but without its objectionables.) But you will find it difficult to shut the sliding gates into the channel quick enough to prevent a loss of steam, after the piston passes. Let your piston be full and curved on both sides alike, (which will not in the least reduce the action of the steam thereon) and you may drive it with a much more rapid motion without loss of power. Should you construct it with two opposite swelled pistons, thus reducing the revolving part to an oval form and admit the steam in two places, the balance of pressure on the opposite sides, would greatly relieve the axles from wear, and avoid much friction.

"N. McQ. of N."—The first volume of the Scientific American that we advertised for sale a few weeks since is disposed of, but if we can procure another we will fill your order.

"T. C. of Xenia, Ohio."—Your packages was sent by Livingston and Wells' Express last Friday week.

Phenomena in Natural History.

The Montgomery (Alabama) Journal, says :—" An intelligent and reliable cosrespondent at Missouri, Pike County, informs us of a singular circumstance which had somewhat troubled many of the worthy citizens of that section. This was the appearance of an immense flight of the great American vulture, of several miles in length, and containing millions of these ærial scavengers ; they were a long time in passing, and at times darkened the whole horizon. The writer says they came nearly from due north and steered nearly south ; some flew so low as to be within the limits of the boughs of the tallest trees, and others so high as scarcely to be seen. At one time the whole canopy seemed to be darkened with these birds from east to west, north to south : from the tops of the trees to as high as the sight could reach, was one dark cloud.

Natural Curiosity.

There is to be seen at Liberty Hall, corner of Broadway and Cherry sts., St. Louis, a stone, or mineral substance, flat on one side, in the centre of which is the head of an animal, more resembling that of a horse than any other, in such position as to present to view one eye and one nostril This is surrounded by a formation resembling the coil of a snake of hugh circumference, in the form of a perfect elliptical ring. This substance turned upside down the other side exhibits the form of an enormous sized land terrapin, with its head drawn in, and its shell closed. It weighs 280 pounds, and was found 110 feet below the surface of the earth, in a shaft sinking for lead ore, in St. Francois county.

Buildings for the Laboring Classes.

A bill has been reported in the Senate, to incorporate R. B. Minturn, Horatio Allen, &c. as an "Association for improving the Dwellings of the laboring classes of the city of New York."

ADVERTISEMENTS.

☞ This paper circulates in every State in the Union, and is seen principally by mechanics and manufacturers. Hence it may be considered the best medium of advertising, for those who import or manufacture machinery, mechanics tools, or such wares and materials as are generally used by those classes. The few advertisements in this paper are regarded with much more attention than those in closely printed dailies.

Advertisements are inserted in this paper at the following rates :

One square, of eight lines one insertion,	$ 0 50
" " " " two do.,	75
" " " " three do.,	1 00
" " " " one month,	1 25
" " " " three do.,	3 75
" " " " six do.,	7 50
" " " " twelve do.,	15 00

TERMS:—CASH IN ADVANCE.

GENERAL AGENTS
FOR THE SCIENTIFIC AMERICAN.

New York City, -	Geo. Dexter.
" " -	Wm. Taylor & Co.
Boston, - - -	Messrs. Hotchkiss & Co.
Philadelphia, - - -	George W. Adriance.
Boston, - - - -	Jordon & Wiley.

LOCAL AGENTS.

Albany, - - - -	Peter Cook.
Baltimore, Md., - -	S. Sands.
Cabotville, Mass., -	E. F. Brown.
Concord, N. H. -	Rufus Merrell.
Hartford, Ct., - -	E. H. Bowers.
Lynn, Mass, - - -	J. E. F. Marsh.
Middletown, Ct., - -	Wm. Woodward.
Norwich, Ct., - - -	Safford & Parks.
New Haven, Ct., - -	E. Downes.
New Bedford, Mass., -	Wm. Robinson & Co.
Newark, N. J., - -	J. L. Agens.
Newark, N. J - -	Robert Kashaw.
Providence, R. I., - -	H. & J. S. Rowe.
Rochester, N. Y. -	D. M. Dewey.
Springfield, Mass., - -	Wm. B. Brocket.
Salem, Mass., - - -	L. Chandler.
Saco, Me., - - - - -	Isaac Crooker.
Troy, N. Y., - - -	A. Smith.
Taunton, Mass., - -	W. P. Seaver.
Worcester, Mass., - -	S. Thompson.
Williamsburgh, - -	J. C. Gander.
Dover, N. H. - - - -	D. L. Norris.

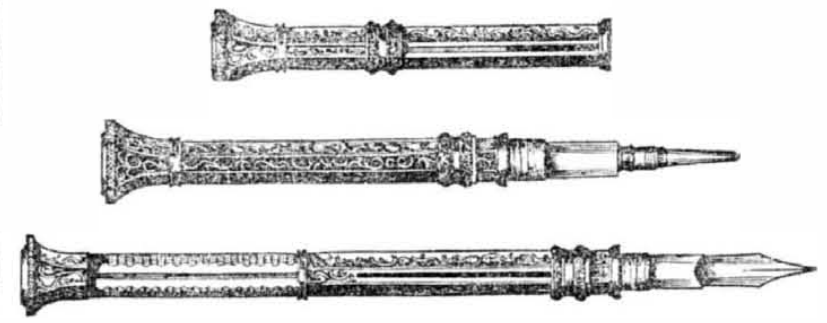
CITY CARRIERS.

Clark Selleck, Squire Selleck, Nathan Selleck.

Persons residing in the city or Brooklyn, can have the paper left at their residences regularly, by sending their address to the office, 128 Fulton st., 2d floor.

To Engineers, Architects, Builders, &c.

WANTED to engage as Clerk of the Works under an Engineer or Architect, or as Foreman to a Builder. The advertiser has been engaged in London during the last ten years as a principal foreman to an extensive builder and contractor, and has been accustomed to make detail drawings and setting out work generally, particularly Joiners and Carpenters work. For further particulars apply at this office. a10 3t*



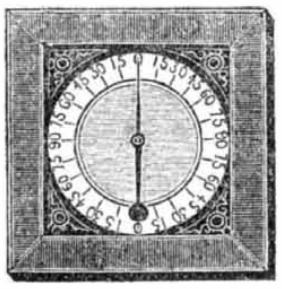
Bagley's Patent Extension Penholder and Pencil.

THIS is the most compact, complete, convenient and useful pocket companion ever offered to the public. The multiplicity of its usefulness and the smallness o its size, renders it a perfect Multum in parvo.

In the short space of 2 3-4 inches is contained a Pen, Pencil, and a reserve of leads, and by one motion slides either the pen or the pencil out and extends the holder to six inches, which is but little more than half the length, when shut up, of the common pen holder, but when extended ls one fourth lon ger. This article is secured by two patents, and the Manufacturers are now ready to receive orders for them in any quantity, either of Gold or Silver, together with his celebrated ever pointed Gold Pens, which need no proof of their superiority except the increased demand for the last six years, and the numerous attempts at imitation.

A. G. BAGLEY, No. 189 Broadway.
New York, Sept. 1, 1846. o24 tf

Plumb and Level Indicator.



THE UTILITY of this invention so far exceeds the expectation of the inventor that he has been induced to engage in the manufacture of them to a large extent. It is understood from the engraving, that the proper position of the instrument is vertical, and that the weight of the ball will keep the index in a perpendicular position, so that either the bottom or side of the frame being placed against a horizontal, vertical or oblique surface, the index will show its inclination, (if there be any) in degrees.

Besides its utility, the Indicator possesses a share of elegance, consisting of a neat mahogany frame 9 inches square and glass, encasing a lithographic dial with an appropriate picture in the centre, and the movement is so free that a variation of one fourth of a degree is indicated. They may be sent to any part of the U. S. by Express.

For sale, wholesale and retail, at this office. Address MUNN & CO (post paid) ☞ Price $1 single. A discount to dealers. m13 tf

Dr. S. B. SMITH'S Torpedo Magnetic Machine.

THE CURES PERFORMED BY THIS NEW and singular machine, which obtained the premium and medal at the Fair of the American Institute, are multiplying rapidly throughout the United States. A few among the many cures are hereunto annexed :

State of New York, City of New York, SS.—On the 16th day of February, A. D. 1847, appeared before me Doctor S. B. Smith, who being by me duly sworn, did depose and say that the following certificates and extracts from letters are each and every one of them true as received from the several persons whose names are thereunto attached, and that the same are a portion of the many testimonies of the cures by his Magnetic Machine.

Affirmed before me, this 16th day of Feb. 1847.
DAVID S. JACKSON,
Acting Mayor of the City of New York.

Cured of the Dropsy, Jaundice, and Contraction of the Leg : Sarah Sanger, 154 Delancey st., N. Y.

Cured of Lock Jaw : A case under the care of A D. Bacon, M D., Annisquam, Mass.

Case of Scrofula and Palpitation of the Heart : Two of Dr. Smith's own children, the scars still to be seen.

Cured of Spinal Complaint and Weak Eyes ; Cases attested to by H. Peck, New London, Huron County, Ohio.

Cured of Rheumatism : Several cases attested to by J. Miller, of New London, Ohio.

For further particulars relative to the wonderful cures performed by these wonderful machines, we would refer you to the inventor, who has original letters from those cured, that he would be pleased to show at his office.

Price $12, neatly put up in mahogany cases, with a book of explanation to accompany.

Orders from any part of the United States, promptly attended to. Address
F27 tf MUNN & CO. (post paid) New York.

BOOKS ! BOOKS ! !

☞ We would inform those who are desirous of procuring **MECHANICAL AND SCIENTIFIC BOOKS,** that we have made arrangements whereby we can furnish almost any work, at the lowest prices. We have Scribner's Mechanic, and Scholfield's Geometry, constantly on hand.

Price of Scribner's Mechanic, tuck & gilt edge	$1,50
" " plain, bound in leather,	$1,12
" of Scholfield's Geometry (per vol.)	$1,50

☞ The trade furnished at a discount.
MUNN & CO., Publishers,
F6 128 Fulton street, N. Y., 2d floor.

Lap-welded Wrought Iron Tubes
FOR TUBULAR BOILERS,

From 1 1-4 to 6 inches diameter, and any length, not exceeding 17 feet.

THESE Tubes are of the same quality and manufacture as those extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee,
d26 28 Platt street, New York.

BLACK LEAD POTS.—The subscriber offers for sale in lots to suit purchasers, a superior article of BLACK LEAD POTS, that can be used without annealing. The price is low, and founders are requested to make a trial.

SAMUEL C. HILLS,
j2 3m Patent Agent, 12 Platt street.

NOTICE.

TO COTTON & WOOLEN MANUFACTURERS.

THE subscriber will furnish to order his Improved Cotton Willow and Wool Picker. It is warranted to do more work and much better in quality, with less outlay of power than any other machine in use, also the repairs required are much less on the machine itself and the succeeding machinery, the cotton or wool being so perfectly opened there is much less strain upon the card, clothing, &c., &c. It has been introduced into more than 60 of the best Mills in New England and quite a number of them have stated to me that they save the expense of the machine in a few months in WASTE ALONE, when much stock is used. EDMUND BACON,
Superintendant of Portsmouth, N. H.
d12 6m* Steam Mills.

GENERAL PATENT AGENCY.

THE subscriber has established an agency at his warehouse, 12 Platt street, New York, for the protection and general advancement of the rights and interests of Inventors and Patentees.

The objects of this agency are more particulary to aid and assist Inventors and Patentees in effecting sales of their inventions and of goods and wares made therewith—and also for the sale and transfer of Patent Rights.

Arrangements have been made with a lawyer familiar with the Patent Laws, who will attend to the legal branch of the business upon reasonable terms. Satisfactory references will be given. Applications may be made to the undersigned personally, or by letter, post paid. SAMUEL C. HILLS,
j2 3m* General Patent Agent.

Branwhite's Patent Color Discriminator.

☞ This ingenious invention consists of a neat box in which are arranged in a scientific manner, all the most brilliant colors, THIRTY FIVE IN NUMBER represented by as many convex discs of the FINEST SILK. Each disc bears a number referring to an explanatory scale. The attention of storekeepers, milliners, and indeed all who have occasion to vend or purchase colored articles of any kind, is respectfully invited to this new and valuable discovery. More trouble can be saved by its use in ONE DAY than four times the amount of its cost. For sale, wholesale and retail, at the office of the Scientific American 128 Fulton st., 3 doors from the Sun Office.

They may be sent by Express, to any part of the United States. oct31

PATENT AGENCY AT WASHINGTON.
ZENAS C. ROBBINS,
Mechanical Engineer and Agent for procuring Patents.

WILL prepare the necessary Drawings and Papers for applicants for Patents, and transact all other business in the line of his profession at the Patent Office. He can be consulted on all questions relating to the Patent Laws and decisions in the United States or Europe. Persons at a distance desirous of having examinations made at the Patent Office, prior to making application for a patent, may forward (post paid, enclosing a fee of five dollars) a clear statement of their case, when immediate attention will be given to it, and all the information that could be obtained by a visit of the applicant in person, promptly communicated. All letters on business must be post paid, and contain a suitable fee, where a written opinion is required.

Office on F street opposite Patent Office.

He has the honor of referring, by permission, to Hon. Edmund Burke, Com. of Patents ; Hon. H. L Ellsworth, late do ; H. Knowles, Machinist, Patent Office ; Judge Cranch, Washington, D. C. ; Hon. R. Choate, Mass., U. S. Senate ; Hon. W. Allen, Ohio, do; Hon. J. B. Bowlin, M. C. Missouri , Hon. Willis Hall, New York ; Hon. Robert Smith, M. C. Illinois ; Hon. S. Breese, U. S. Senate ; Hon. J. H. Relfe, M. C. Missouri ; Capt. H. M. Shreve, Missouri. j23

C. KNOX,
HAT AND CAP MANUFACTURER AND DEALER.
128 Fulton street, N. Y.

☞ A large assortment of the Spring style now on hand. m27 1m*

TO PATENTEES AND MANUFACTURERS.

THE undersigned, Forwarding and Commission Merchants, located at Harrisburg, the seat of Government of Pennsylvania, solicit consignments of Groceries, Merchandise, Domestic Manufactures, and useful Patent articles.

They are in the midst of Flouring Mills, Forges, Furnaces, Coal Mines, Canals, Rail Roads, and one of the best agricultural districts in the Union.

☞ One of the undersigned is a machinist of many years experience, and will give personal attention to patent machinery.

Letters post paid will receive immediate attention.
FUNK & MILLER
Harrisburg, Pa., Feb. 14. F20 13t*

Engraving on Wood

NEATLY AND PROMPTLY EXECUTED AT the Office of the Scientific American, 128 Fulton st, three doors from the Sun Office. Designs DRAWINGS of all kinds for PATENTS, &c., also made, as above, at very low charges.

© 1847 SCIENTIFIC AMERICIAN, INC

Improvement in the Pin Manufacture.

Pins are at present made for the most part of brass wire coated with tin to protect them from oxidation, for though pins have been also made, and may be still made for particular purposes, of iron and steel wire similarly coated, yet owing to the difficulty of coating the latter with tin, (arising from the small affinity which tin has for iron and steel,) it has been hitherto found impracticable to produce iron or steel pins of sufficient sharpness & smoothness to be suitable for general use, or applica ble to any other than coarse fabrics.

A process has recently, however, been invented in France, and secured by patent in England, by which pins may now be manufactured of iron and steel equal to the best brass pins in point of smoothness, and far superior to them in respect of strength, sharpness and tenacity.

The means by which this is effected may be described generally as consisting in giving the iron and steel pins a coating of copper previous to coating them with tin, the copper adhering readily to the iron or steel, for which it has naturally a strong affinity, and the tin combining with equal readiness with the superimposed copper; or in coating them with copper alone without any additional coating of tin.

The details of these improved methods of manufacturing pins of iron and steel wire, (so far as they differ from those of the methods hitherto pursued,) are described as follows, under the different heads into which the same practically divide themselves :—

The Selection and Preparation of the Wire.—The iron or steel wire employed should be very round, and, to protect it from rust, it should at the last drawing be lubricated by means of a sponge saturated with oil, placed between the draw plate and reel. In all the subsequent stages of the manufacture care should be taken to preserve the pins from oxidation by keeping them well oil'd or greased.

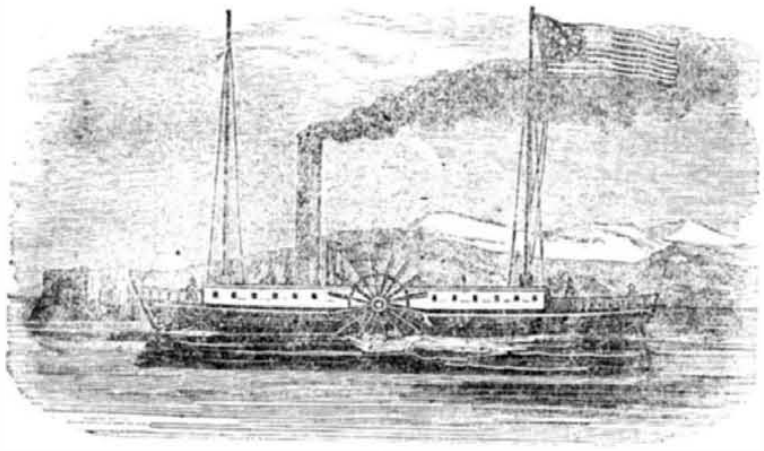
The Cleansing and Polishing.—The wire being cut into pins, and these headed and pointed, all according to the usual methods, the pins are thrown into a revolving cylinder of wood, containing a bath of soap and water in a hot state. It is of the capacity of about nine gallons and a half, but should not contain more than about one gallon and a half of water, with about two ounces of soap dissolved therein, as this quantity will be sufficient for the treatment of about thirteen pounds and a half weight of pins at a time. The cylinder, when thus charged, is made to revolve for about a quarter of an hour; at the expiration of which time the pins are found free from the oil with which they were previously coated, and also very much smoothed and polished by their rubbing one against the other.

The Drying.—The pins are next dried by transferring them to another cylinder partially filled with well dried sawdust, (preferring for the purpose the sawdust of poplar wood,) and causing this cylinder to revolve for about ten minutes; or, instead of employing a cylinder of this description, the pins may be thrown into a bag or bags partially filled with the saw dust, and the reduisite friction produced by swinging or rolling these bags about for the same length of time.

The Copper Coating Bath or Mixture.—Into a glass, or stone vase, the inventor puts about one and a half gallons of soft water, seven tenths of a pound of sulphuric acid, 6-100 lb. of salt of tin, 8-100 lb. of crystalized sulphate of zinc, and 108 grains of pure sulphate of copper, and leaves this mixture to work for about twenty-four hours, so that the salts and sulphates may be properly dissolved. This is found to be on the whole the mixture best adapted for the purpose in view; but most of the ingredients mentioned may have others substituted for them, as, for example, any other acid or substance producing like effects may be used instead of the sulphuric acid, or the sulphate of tin may be substituted for the salt of tin, or any of the salts of copper or zinc used in place of the sulphates of copper or zinc.

(*To be Continued.*)

THE CLERMONT.



The above is a correct drawing of *Fulton's first American Steamboat*, called the "Clermont." She was built at the ship yard of Charles Brown, at the Dry Dock, New York city, in the year 1807. Omitting every thing in regard to the difficulties with which Fulton had to contend, and the utter incredulity of almost every person until his boat left the wharf moved by steam, we will give a short account of her trial trip

Mr. Livingston and Mr. Fulton had invited many of their friends to witness the first trial, among whom were those learned men, Dr. Mitchill and Dr. McNeven, to whom we are indebted for some account of what passed on this occasion. Nothing could exceed the surprise and admiration of all who witnessed the experiment. The minds of the most incredulous were changed in a few minutes. Before the boat had made the distance of a quarter of a mile the greatest unbeliever must have been converted. The man, who while he looked on the expensive machine, thanked his stars that he had more wisdom than to waste his money on such idle schemes, changed the expression of his features as the boat moved from the wharf and gained her speed, and his complacent expression gradually stiffened into wonder. The jeers of the ignorant, who had neither sense nor feeling enough to suppress their contemptuous ridicule and rude jokes, were silenced for a moment by a vulgar astonishment which deprived them of the power of utterance, till the triumph of genius extorted from the incredulous multitude which crowded the shores shouts and acclamations of congratulations and applause.

The "Clermont" was afterwards a regular packet between New York and Albany, performing the distance each way in about thirty hours. By reference to the engraving it will be seen that she labored under a great disadvantage in having the wheels hung on the shaft without any outward support. This is now supplied by what are called the wheel-guards.

Chemitype Printing.

Those who are aware of the deficiencies still existing in the practice of wood engraving will gladly receive the intelligence of a newly invented art, which, though unlikely to supersede wood engraving altogether, may certainly remedy the imperfections to which it is subject. This art is termed Chemitype Printing. It has been invented by Herr Pul, of Copenhagen, and practised by him at Leipzic, in conjunction with G. H. Friedlein, graphic printer, of the same city. By this method an etching or engraving, made on metal in the usual way, may be converted into a high relievo stamp, to be used for printing on an ordinary printing press, as is the case with common wood engravings. The following statement may in general illustrate the character of the invention: Zinc, being the most positive of all metals, and, at the same time, the cheapest, is principally used. On a highly polished plate of pure zinc an etching or engraving is made in the usual manner, which, under common circumstances, would be fitted for impressions on a copper engraver's press, having the same harmony and proportion of all the respective etched or engraved lines. The tracery, thus deepened, is now to be fuzed or melted down with a negative metal, and the original metal plate (zinc) corroded or etched by means of a certain acid, thus making the cavities of the former drawing appear in the shape of a high relievo stamp. This effect is only produced in consequence of the metal composition in the lines of the tracery not being acted upon by the acid on account of the galvanic agency subsisting between the two metals, and the acid corroding only the zinc, according to the discoveries of the celebrated Professor Jacobi.

After these details there cannot be the least doubt of the specific difference between chemitype printing and glypography, relievo etching in copper, and other similar artistical processes and practices lately invented. Its principle rests upon the positive and negative nature of the metals. As every drawing on the metal plate is completely exact in the relievo stamp, the practice is absolutely independent: the exact and accurate representation of the original sketch is always to be expected. Wood engraving can, in most cases, be superseded by this novel method; but whenever little outlay and a necessity of putting the impressions continuously in the letter press are to be considered, much better work can be furnished by chemitypes. In many other instances the new practice is preferable, chiefly when colored printing is required, that is, in the representation of maps, plans, architectural drawing, &c. At the same time, the correction or improvement of any drawing can be much better executed than in wood engraving. The inventor has published a pamphlet on his valuable invention. It is accompanied with some excellent specimens, which even at first sight give a decided testimony to the superiority over wood engravings. Every new addition to the facilitated means of all sorts of Art, by which they may become the multiplying agents of general civilization, must be received with consideration.

Improvements in the Construction and Supply of the Hydro-oxygen Blowpipe.

BY ROBERT HARE, M. D.

(*Concluded from No.* 28.)

After my return from Europe in 1836, I was very much in want of a piece of platinum of a certain weight, while many more scraps than were adequate to form such a piece were in my possession. This induced new efforts to extend the power of my blowpipe; and after many experiments, I succeeded so as to fuse twenty-eight ounces of platinum into one mass.

Although small lumps of platinum had been fused by many operators, with the hydro-oxygen blow-pipe, as well as myself, it had not, up to the year 1837, been found sufficiently competent to enable artists to resort to this process. I am informed by Mr. Saxton, that some efforts which were made while he was in London were so little successful, that the project was abondoned. There was an impression that the metal was rendered less malleable when fused upon charcoal, as in the experiments alluded to. This is contradicted by my experiments, agreeably to which fused platinum is as malleable as the best specimens obtained by the Wollaston process, and is less liable to flake. The celebrated Dr. Ure, on seeing the platinum in the forms of wire, of leaf, and plate, said that there was no one in Europe who could fuse platinum in such masses. He also alleged that it had been found so difficult to weld platinum, that no resort was had to that process. In this I concur, having had the welding tried by a skillful smith, both with a forge heat, and with a heat given by the hydro-oxygen blowpipe. An incorporation of two ingots was effected on their being hammered together, when heated nearly to fusion; but on hammering the resulting mass cold, a separation took place along the joint by which the ingots were united.

The difficulty seems to arise from the rapidity with which the platinum becomes refrigerated. It seems to have a less capacity for heat than iron, and, not burning in the air as iron does, has not the benefit of the heat acquired by iron from its own combustion with atmospheric oxygen.

Latterly, by means of instruments and process (not convenient here to describe,) I have been enabled to obtain malleable platinum from the ore directly, by the continued application of the flame. From some specimens of platinum I have procured as much as ninety per cent. of malleable metal. The malleability is not inferior to that of the best specimens obtained, by reducing it to the state of sponge, through the agency of aqua regia and sal ammoniac. There is, however, a greater liability to tarnish, arising, probably, from the presence of a minute portion of palladium.

A Good Paste for Books, Music, &c.

When made in the ordinary manner, paste soon becomes mouldy, and by fermenting in warm weather, loses its sticking power. To make some to keep, make it thus:—Dissolve about an ounce of alum in a quart of warm water, when cold, add as much flour as will make it the consistence of cream; then strew in it as much powdered resin as will stand on a shilling, and two or three cloves; boil it to a consistency, stirring all the time. It will keep for 12 months, and when dry, may be softened with water.

THE NEW YORK
SCIENTIFIC AMERICAN:
Published Weekly at 128 *Fulton Street.*, (*Sun Building,*) *New York, and No.* 13 *Court Street, Boston; the principal office being at New York.*

BY MUNN & COMPANY.

The SCIENTIFIC AMERICAN is the Advocate of Industry and Journal of Mechanica. and other Improvements: as such its contents are probably more varied and interesting, than those of any other weekly newspaper in the United States, and certainly more useful. It contains as much interesting Intelligence as six ordinary daily papers, while for *real benefit*, it is unequalled by any thing yet published Each number regularly contains from THREE to SIX ORIGINAL ENGRAVINGS, illustrated by NEW INVENTIONS, American and Foreign,—SCIENTIFIC PRINCIPLES and CURIOSITIES,—Notices of the progress of Mechanical and other Scientific Improvements Scientific Essays on the principles of the Sciences of MECHANICS, CHEMISTRY and ARCHITECTURE,—Catalogues of American Patents,—INSTRUCTION in various ARTS and TRADES, *with engravings*,—Curious Philosophical Experiments,—the latest RAIL ROAD INTELLIGENCE in EUROPE and AMERICA,—Valuable information on the Art of GARDENING, &c. &c.

This paper is especially entitled to the patronage of MECHANICS and MANUFACTURERS, being devoted to the interests of those classes. It is particularly useful to FARMERS, as it will not only apprise them of IMPROVEMENTS in AGRICULTURAL IMPLEMENTS, but INSTRUCT them in various MECHANICAL TRADES, and guard against impositions. As a FAMILY NEWSPAPER, it will convey more USEFUL Intelligence to children and young people, than five times its cost in school instruction.

Being published in QUARTO FORM, it is conveniently adapted to PRESERVATION and BINDING.

TERMS.—The Scientific American is sent to subscribers in the country at the rate of $2 a year, ONE DOLLAR IN ADVANCE, the remainder in 6 months. Persons desiring to subscribe, have only to enclose the amount in a letter, directed to

MUNN & COMPANY,
Publishers of the Scientific American, New York.

☞ Specimen copies sent when desired. All Letters must be POST PAID.

© 1847 SCIENTIFIC AMERICIAN, INC